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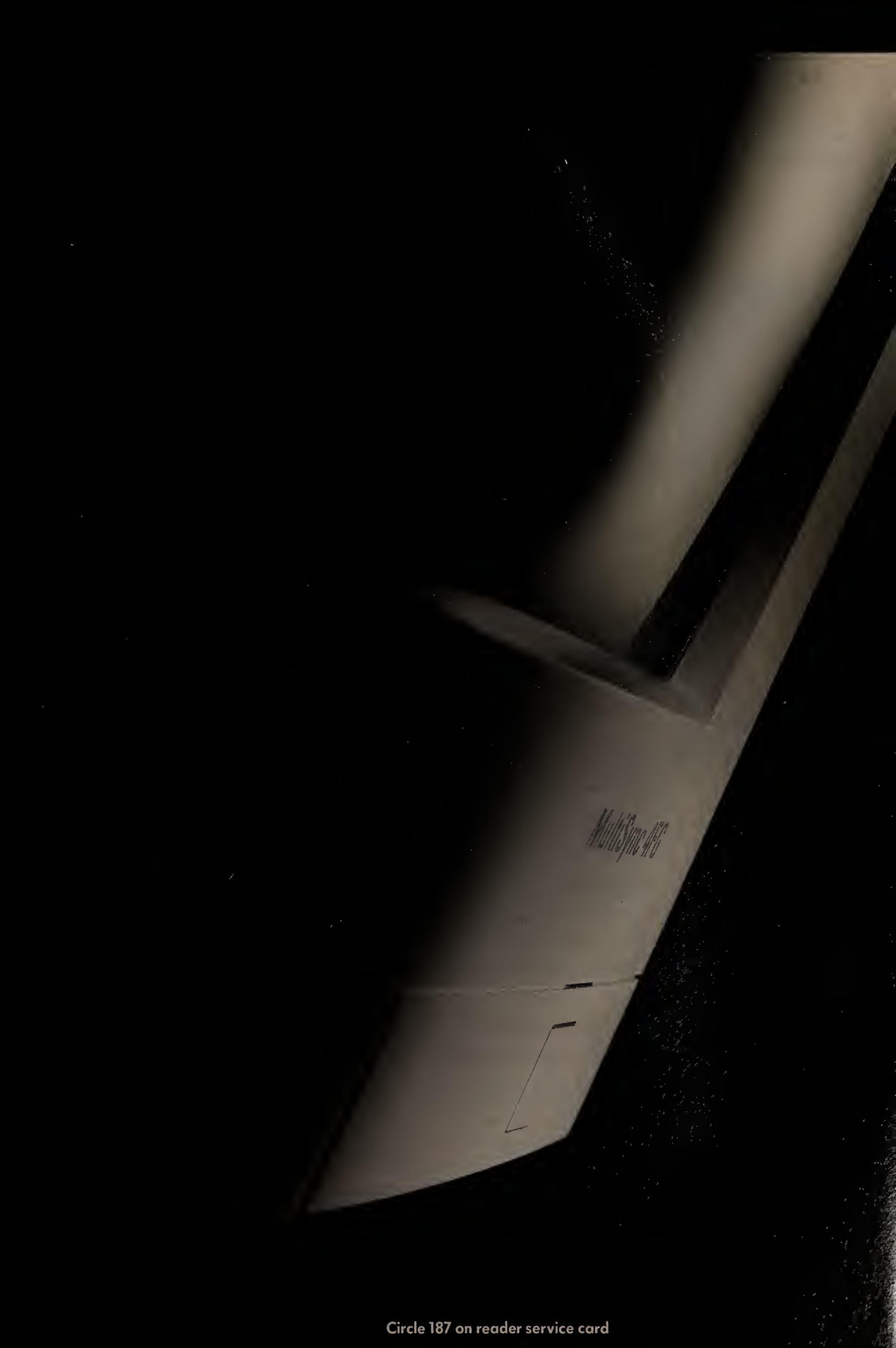

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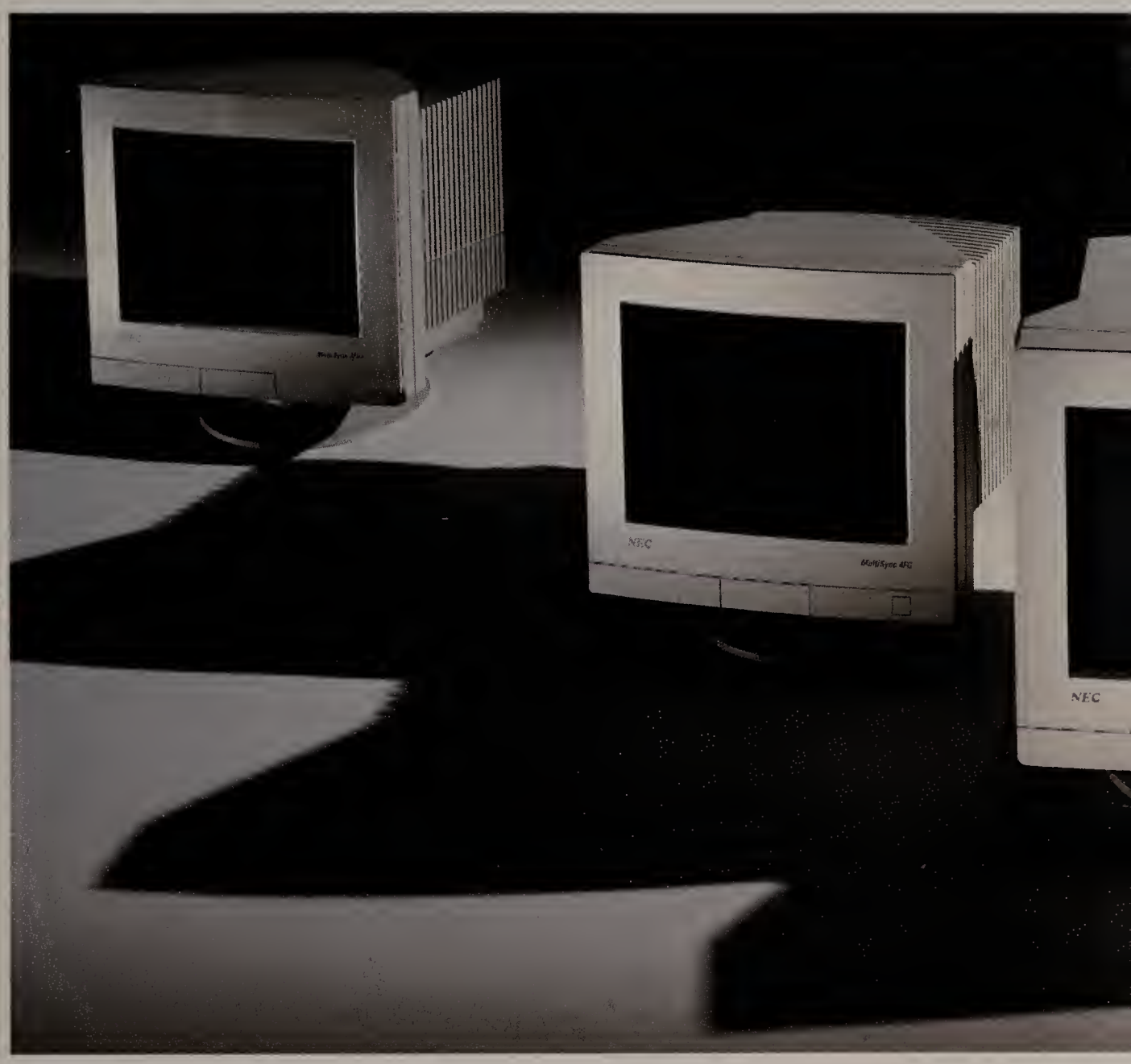

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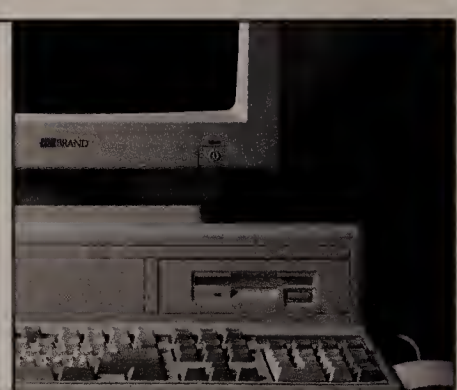

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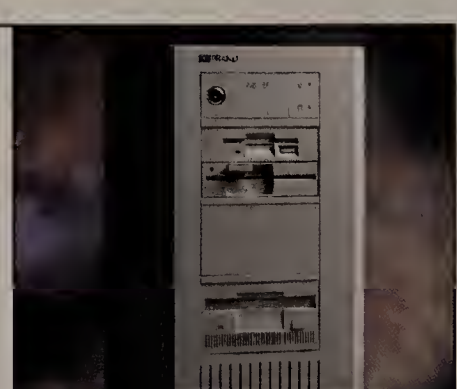

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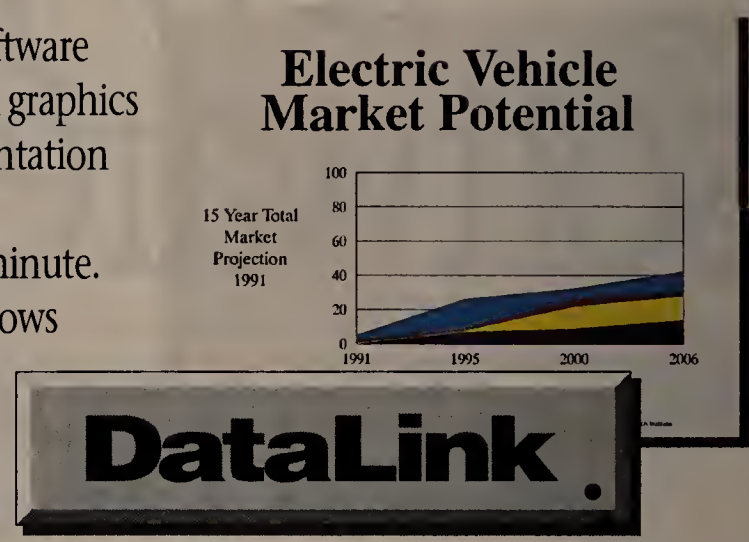

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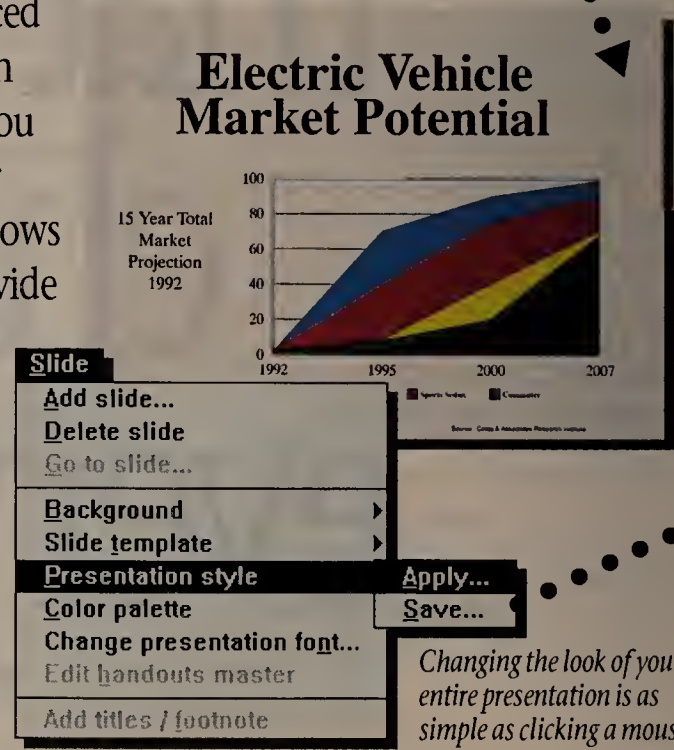

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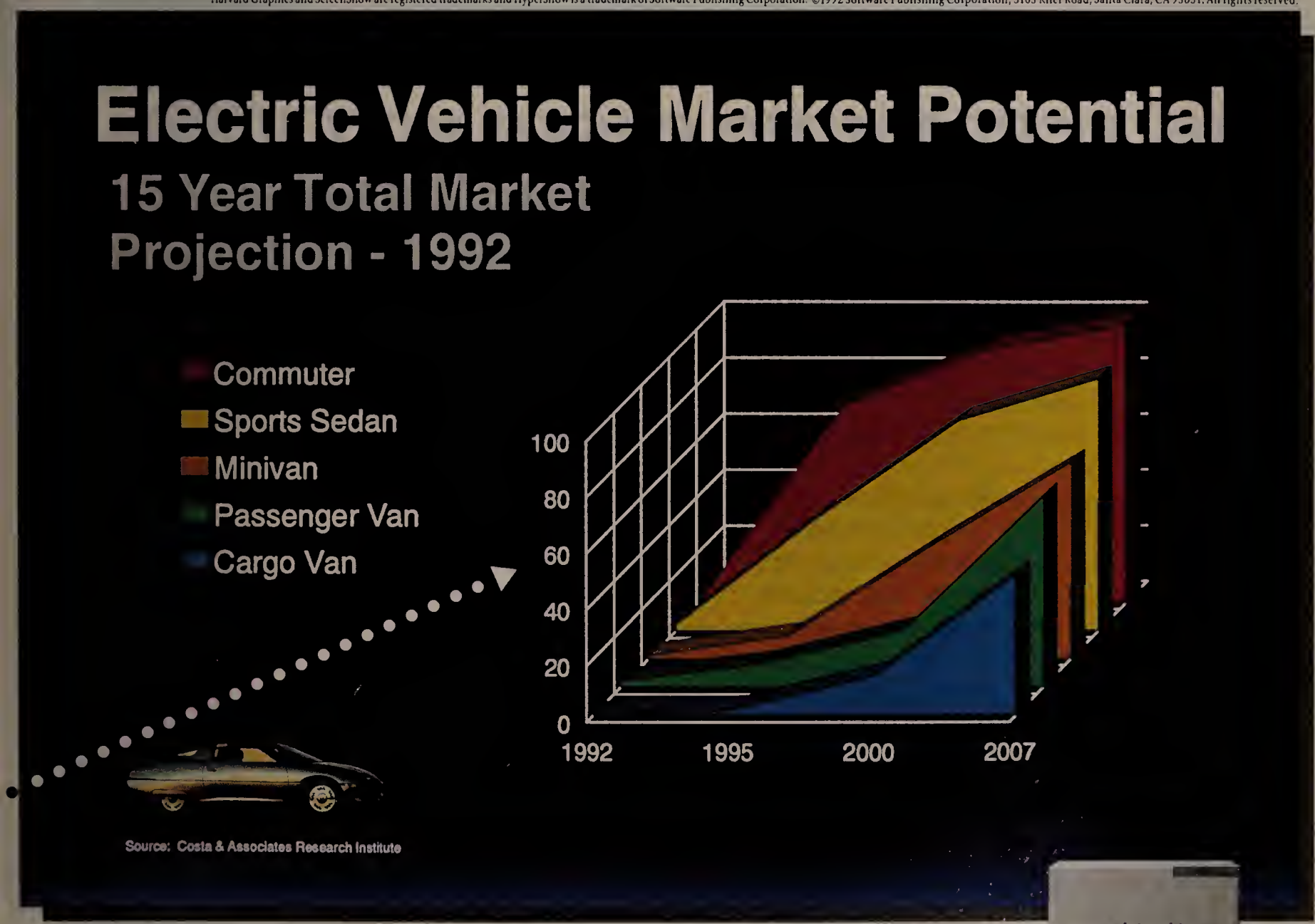

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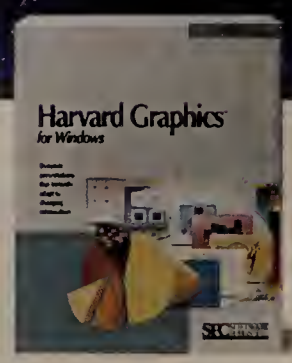

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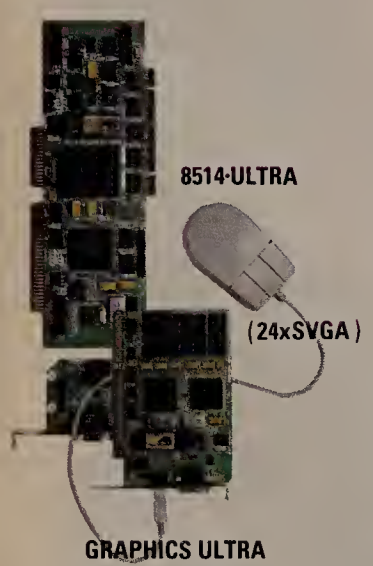

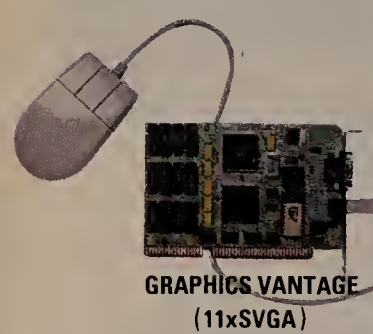

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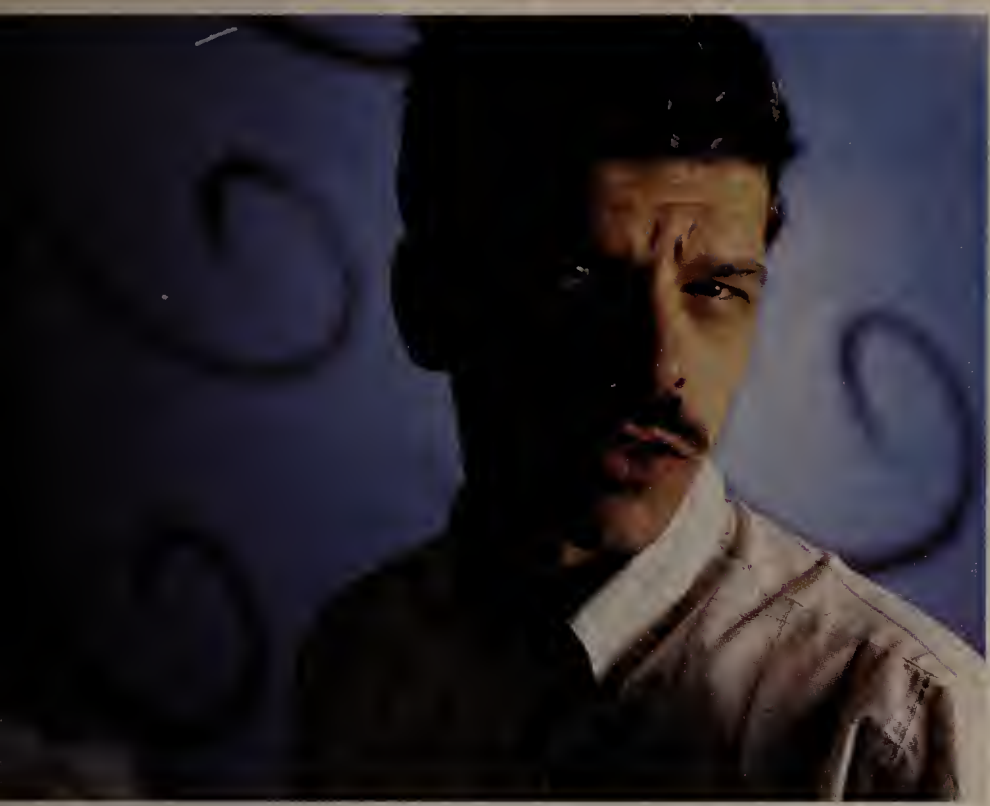

Contributing Editor Robert Luhn stretches Windows 3.1 to its limits.

ROBERT CARDIN

Taking It All With You

If you've had to choose between using your notebook and running *Windows*, you're not alone. *Windows* and notebooks make conflicting demands. Like most graphical operating environments, *Windows* needs lots of memory, mass storage, processing power, and display quality. Notebook computers, on the other hand, must exclude anything that stretches their dimensions beyond 8½ by 11 inches or adds the weight associated with large hard disks, power supplies, and CRTs. So it's hardly surprising that users often leave *Windows* behind when they hit the road.

Indeed, if anything has slowed the stampede to adopt *Windows*, it's the stampede to adopt notebooks. Some of the benefits of a standard graphical user interface vanish if you can't use it everywhere. And those notorious Unrecoverable Application Errors are particularly disturbing at 39,000 feet, when you don't know whether you're encountering solar storms, a *Windows* bug, or a "badly behaved" application. It's like the PC version of crossing the Bermuda triangle.

Take heart. The computer industry has worked full time to produce notebooks that run *Windows* comfortably, and Microsoft is putting the finishing touches on *Windows 3.1*, with greater reliability as one of the major goals. In this issue, our preview of *Windows 3.1* and several articles on portable computing show that now you not only can have it all, you can take it all with you.

Windows is already a de facto standard because more than 7 million copies have been sold. *Windows 3.1* will strengthen its top position with improved error trapping. If your application crashes, it's probably just that one application, not *Windows* itself. While no one should call *Windows* fail-safe, it's now fail-resistant and therefore a much better traveling companion.

Several other major benefits come with *Windows 3.1*. Bundled scalable fonts improve screen readability and print quality. An improved File Manager and broader drag-and-drop availability should end your anachronistic dependence on the command line.

But your favorite applications and utilities are still tugging you back to DOS, right? Think again. You'd be better off moving everything onto *Windows* applications and utilities, because you can do so now without sacrificing your power and flexibility standards. Our special report on the best *Windows* software highlights great new applications on the horizon, such as *Quattro Pro for Windows*.

That leaves only one good reason for sticking with DOS: *Windows* is too big for a notebook. Wrong again. Our roundup of 23 notebook computers shows that most run *Windows* quite comfortably, thank you, right down to suspend/resume buttons that work when *Windows* is running. The Best Buy? Texas Instruments' TravelMate 3000 WinSX, though Zenith Data Systems' MastersPort 386SL has longer battery life and higher performance.

We also offer a review of seven remote communications packages, a Buyers' Guide to portable accessories —pointing devices, printers, fax-modems, and LAN adapters—and a feature cartoon depicting a day in the life of two traveling professionals. Why focus on luxuries like *Windows* and notebook computers in a time of recession? A standard GUI like *Windows* reduces training expenses, and notebook computers keep your employees as productive as possible on the road. ●

Phil Lemmons

Phil Lemmons
Editor in Chief

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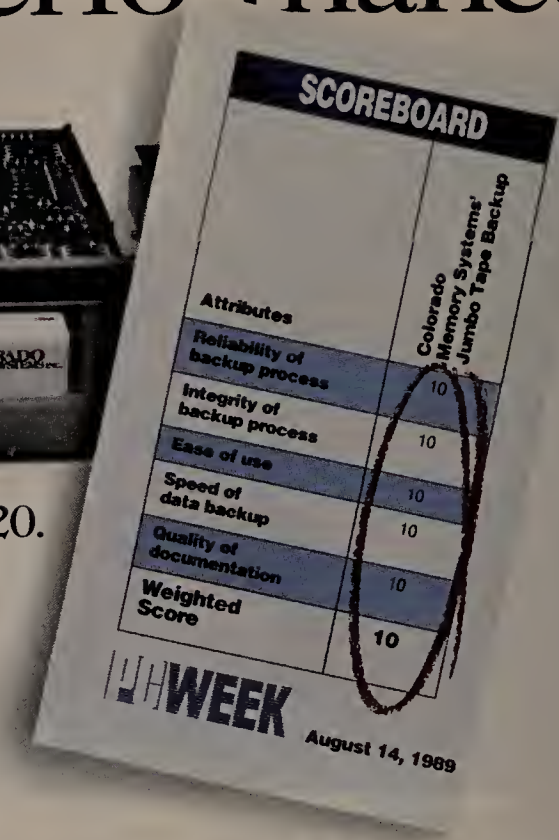

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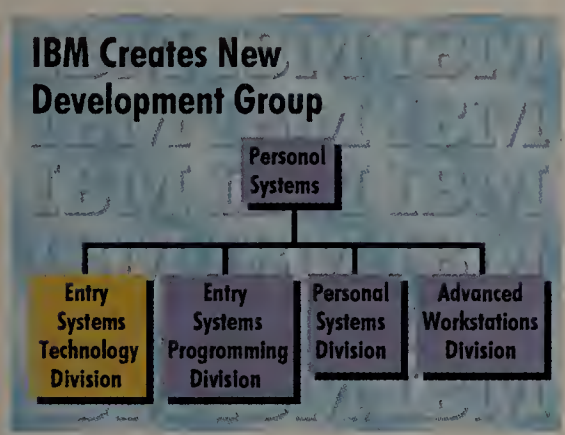
Circle 46 on reader service card

Edited by RUSSELL GLITMAN

IBM Unleashes PC Group

Observers Doubt Moves Will Spur Sales

With PC sales having shrunk 10 percent last year to below $9 billion, IBM has loosed the reins on its Personal Systems Group in the hope that an independent business will respond faster to customer needs. But customers and industry observers doubt the changes are enough to accomplish a turnaround in sales.



Seeking shorter development cycles, IBM has formed an Entry Systems Technology Division.

Under the new arrangement, Personal Systems head James Cannavino will chair an executive committee that has worldwide responsibility for PCs. "This will give him more direct control over worldwide manufacturing, development, and pricing, and over time, he'll gain more and more autonomy," says a spokesperson for IBM.

IBM also will reorganize hardware development in a bid to speed product updates, which have lagged the market. A new Entry Systems Technology Division will concentrate on components such as hard drives and graphics adapters; the division should speed the rollout of products and upgrades, says Bob Carberry, assistant general manager for systems technology. Overall, Carberry adds, the restructuring aims to push decisions lower in the organization: "Now the buck stops here at the Personal Systems line of business."

Outsiders remain skeptical that forming another committee and splitting development into two groups will take care of IBM's problems. Michael Goulde of *Open Systems Advisor* in Boston suggests that IBM needs to follow Compaq's example and institute a radical overhaul of its strategies and product lines. "I want to see some activity beyond just changing offices or letterhead," Goulde says.

"I certainly hope it works," says Bob Holmes, computer technology research analyst for Southern California Gas in Los Angeles. "They haven't been doing a very good job for the past couple of years. It's put-up-or-shut-up time for IBM." —*Eric Bender*

Did You Buy Your Products Here?

PC World has received more than four dozen consumer complaints about four Los Angeles–area mail-order businesses whose modes of operation strongly resemble one another. Customers complain about mail-order providers Computer Spectrum in Wilmington, One Stop Micro in Van Nuys, MinuteMan Computers in Costa Mesa, and American Computer Technology (ACT) in Garden Grove.

In all cases, customers report that they paid for products still not received after repeated calls to the companies or that they received incorrect or defective products. Some have been waiting since July to have orders filled or mistakes corrected.

All the firms conduct telephone sales from what appear to be retail computer outlets located in low-rent business strips. Despite their signage and appearance as retail operations, none carry any appreciable inventory or even product literature on site. All conspicuously exhibit a half dozen or so identical boxes labeled "Personal Computer—Fragile." Employees said the boxes were empty. Although ostensibly competitors, all are credit referrals for one or more of the others.

A fifth company, Global Electronics of Culver City, California, processed credit orders placed with ACT, which has gone out of business. As of this writing, Global has not filled outstanding orders for ACT customers we contacted.

Minuteman Computers is also closed. All others except Computer Spectrum were locked during normal business hours when *PC World* visited them in mid-December. We nevertheless gained entry to Global Electronics, One Stop Micro, and Computer Spectrum, all of whose salespeople told us essentially the same thing: They offer the lowest-priced PCs, and orders will be filled "within a couple of days."

PC World has contacted each of these companies but could not find out when orders will be filled. If you are one of their customers, please write *Consumer Watch, PC World* with your experiences.

—*Mike Hogan*

Personal Communicators to Take Off

Traveling executives, who log little desk time, have searched largely in vain for ways to apply PC power to their unique situation. But their dream is about to be realized with the sudden availability of pagers, cellular modems, radio frequency (RF) devices, and many other wireless communications products designed to send and receive electronic mail, programs, and data files via palmtop and notebook PCs. Unfortunately, fulfilling the dream doesn't come cheap.

One example of the new breed of personal communication enablers is Hewlett-Packard's Mobile Data Link, a cradle with built-in software that lets users outfit HP's 95LX palmtop with wireless communications devices.

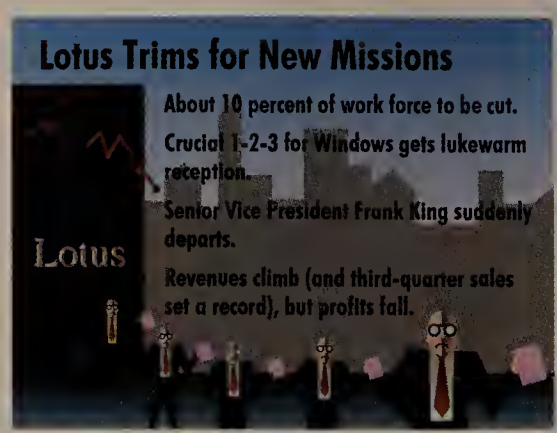
Thus far, two companies have introduced add-ons for the Mobile Data Link. Motorola's News Stream pager receives E-mail and files, while Gessa's Global Positioning System locates your exact longitude and latitude anywhere in the world. Expect to pay around $1000 for the 95LX, Mobile Data Link, and one wireless device, says HP.

From Poqet Computer comes the Communicating Computer, which is a 2.2-pound version of Poqet's DOS palmtop that includes a Motorola RPM 400i radio modem. The Poqet Communicating Computer sends and receives data using the ARDIS radio network, which is an IBM-Motorola joint venture.

—*Jeff Bertolucci*

Plunging Profits Roil Lotus

The giant software firm is giving pink slips to some 10 percent of its 4200 employees worldwide—most of them located at its Cambridge, Massachusetts, headquarters. Sales, consulting, *Notes*, *cc:Mail*, and word processing are the only groups that will remain untouched.



Although sales remain strong, Lotus Development has cut staff and made major executive changes.

Dwindling profits triggered the layoffs. Although Lotus expects 1991 sales to climb about 20 percent to slightly more than $800 million, its income is down 32 percent for the first nine months. One cause, says Jeffrey Tarter, publisher of *Soft-Letter* in Watertown, Massachusetts, is Lotus's failure to streamline operations after its Samna and *cc:Mail* acquisitions.

Senior Vice President Frank King, who ran Lotus's core applications group, resigned in November, and several analysts suggest he took the rap for a buggy *1-2-3 for Windows*. King's departure was part of a general pattern: No fewer than ten Lotus vice presidents left last year, as chair Jim Manzi once again replaced nearly all the executives reporting to him.

But users and analysts hail John Landry, recruited from mainframe software leader D&B Software to replace King. "Bringing in Landry is a good move," says Ronan McGrath, vice president for information systems and accounting at Canadian Pacific Railways in Montreal, Quebec. "He has a very strong history of being able to deliver to customers." McGrath maintains that despite such problems as the buggy *1-2-3 for Windows* release, "there's not a great chance we would walk away from Lotus—an individual product is just a blip in an ongoing relationship."

"A new Lotus is emerging," says analyst Steven Frankel of Adams, Harkness & Hill in Boston. "This is the de-IBM-ing of Lotus. Frank King and a lot of other executives came from IBM, and they built a big, structured organization with lots of vice presidents—but the PC application market today is a brutal street fight."

—Eric Bender

New MPC Multimedia Spec 86es the 286

Realizing that the 286 chip lacks the speed and memory features to handle multimedia effectively, the Multimedia PC Marketing Council—a group of 12 hardware and software companies promoting the MPC "standard" for PCs—has raised the minimum processor requirement for its specification to a 386SX.

According to Mike Grubbs, Tandy Corporation's senior director of marketing and MPCMC chair, the switch to the 386SX solves some thorny technical problems. "One was microprocessor bandwidth, and the other was memory management," Grubbs says. "The 386 family has some capabilities that the 286 doesn't have in that area."

Multimedia computing—incorporating sound, animation, and eventually, full-motion video—requires considerably more computing power and an advanced CPU architecture not available in the 286, according to Grubbs.

The remainder of MPC's base specification remains unchanged and requires at least a CD ROM drive, 2MB RAM, a 30MB hard drive, VGA graphics, an audio card, a MIDI interface, and a mouse.

The upgrade to the specification makes things a lot easier for multimedia application developers. "You definitely need the 386 virtual memory in order to do acceptable multimedia," says Nancy Andrews, product manager of the new *Microsoft Works for Windows 2.0, Multimedia Edition.*

According to Paul Jain, CEO of Media Vision, a developer of multimedia upgrade kits based on the MPC specification, the IBM-Apple alliance, aimed in part at creating multimedia products, was a critical reason the council upgraded the specificiation.

"In the end, our competition is going to be Apple and IBM," Jain says. *—Jeff Bertolucci*

Prices Slashed on New Spreadsheets

Who's on first, what's on second, and will you ever pay full price for a spreadsheet again? Lotus is still on first, barely; Borland and Microsoft fight for second with new versions of *Quattro Pro* and *Excel*, due this quarter.

Forget list prices—including Lotus's record $595 ticket on its new *1-2-3 for Windows*. Single-unit buyers can choose among $99-to-$150 competitive upgrades, deeply discounted bundling deals, "lite" versions like *Quattro Pro*'s $70 SE version, and add-on software premiums—even coffee mugs. Borland will set a new low this spring with a $49.95 upgrade price on *Quattro Pro for Windows* and vows to maintain the pressure.

"The scale of the attack may change, the price may change, but the competitive upgrade is not going away any time soon," says Director of Product Marketing Neil Snyder.

Considering the stakes in the conflict, it's hard to imagine Lotus or Microsoft leaving that challenge unanswered. Even during the recession, the spreadsheet business grew 44 percent this past year, says International Data Corporation senior analyst Mary Conti Loffredo. Meanwhile, the unit share for *1-2-3* slipped about 10 points to 39.7 percent last summer, due mostly to Lotus's inability to get a working *1-2-3 for Windows* out the door. During that time, *Quattro Pro* and *Excel* climbed to 25 percent and 28.6 percent of sales, respectively. Lotus still enjoys the lion's share of revenues, but its position is threatened now that the firmis slugging it out with Borland and cash-heavy Microsoft.

Multidimensional worksheets, enhanced usability, and new levels of analytic power are must-haves for the new round of spreadsheets. But users say they're just as interested in a vendor's support and interapplication strategies.

"Price has been very important," says Mike Juhasz, general consultant at McDonnel Douglas Aerospace Information Services in Long Beach, California. "We are buying product, but we are buying company as well."

—Mike Hogan

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Reason #3

Exceptional Quality.

PC Resource Magazine put it this way, "ZEOS... provides quality comparable with IBM or Compaq and does so for about 70% of the price." ZEOS uses only the very best components. And every system is fully tested and burned-in right in our own labs.

intel inside ™

Reason #4

Value.

InfoWorld says, "We find the ZEOS '386 an excellent value. Speed: Excellent. Compatibility: Excellent. Value: Excellent." *Personal Computing* said, "ZEOS...is the best value we've come across...its performance is right up there with the slickest, most expensive PCs you can buy."

Reason #5

Warranties and Guarantees.

ZEOS believes in its products. That's why we offer each and every customer our 30 Day Absolute Satisfaction Money Back Guarantee, no questions asked. Plus, our One Full Year Limited Warranty and Express Parts Replacement Policy. Optional On Site Service is available too. Call for details.

Reason #6

24 Hour Toll Free Technical and Sales Support.

At ZEOS, the customer is #1. That's why we invented 24 Hour a Day Tech Support. For *your* convenience. If you buy a product from us we feel we should be there to help, any time of the day or night. Give us a call Toll Free! 800-423-5891. Anytime!

Reason #7

Experience.

Almost unique in the mail order computer industry, ZEOS maintains its own chip level Research and Development staff. In addition to Systems Manufacturing, we also operate our own Board Level Manufacturing facility.

ZEOS has been involved in Research and Development since our incorporation back in 1981. Our strong and experienced Research, Manufacturing and Technical Staff translates into superior factory direct computer systems for you.

Reason #8

A Sterling Reputation.

In magazine after magazine and review after review ZEOS systems are cited for Overall Excellence, for Excellent Value, as the Right Choice and so on. All of this is flattering but the most important thing is this: What do our customers think? Frankly, they love us. The systems and the support. That means more to us than anything.

Reason #9

Easy to Buy.

ZEOS systems are easy to buy. You can pick up the phone any time of the day or night and order your new ZEOS computer. And we accept MasterCard, Visa, Discover, American Express, and Corporate Purchase Orders from Fortune 1000 Companies, Colleges, Universities and Governments. Complete Leasing Programs are available as well.

And now the Z•CARD! It's your very own ZEOS Credit Card and you can apply today. With the Z•CARD you can charge your ZEOS purchases and pay in easy monthly installments. It's just like a Bank Card. Why not apply for your Z•CARD now!

Reason #10

You're Going to be Very Satisfied.

When it comes right down to it, you're going to be very satisfied with your new ZEOS system. Our goal is your complete satisfaction. And that's our commitment to you. To quality. To performance. To reliability and support. To *Value*. We don't just say it, *we Guarantee it!*

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Please complete all appropriate sections, *providing at least two years residence and employment history.* **THIS IS NOT A CREDIT AGREEMENT!** One will be sent to you upon authorization of an account. (This Form Must Be Signed To Process Your Order.) All Financed Purchases Are Subject To Credit Approval. **If You Have Any Credit Questions, Please Call 800-421-8942 For Assistance.** Thank You!

A married person may apply for individual credit. I am applying for (please check appropriate box):

☐ **JOINT CREDIT** with another person. Complete entire application.

☐ **INDIVIDUAL CREDIT** but rely on income or assets of another person as a basis for repaying the credit requested. Complete entire application.

☐ **INDIVIDUAL CREDIT.** Do not complete Section C.**

**If you are a married Wisconsin applicant, you must provide your spouse's information as indicated, even though your spouse may not be signing the contract.

NOTICE TO WISCONSIN APPLICANTS: YOU MUST DISCLOSE YOUR MARITAL STATUS:

☐ married ☐ unmarried ☐ legally separated

A. YOUR PERSONAL INFORMATION

Name _____

Home Phone (_____) _____

Soc. Sec. No. _____ Date of Birth ____/____/____

Address _____ Apt. _____

City _____ State _____ Zip _____

Since? (Mo./Yr.) _____ ☐ Buy ☐ Rent ☐ Other _____

Previous Address _____

City _____ State _____ Zip _____

Employer _____ Since? (Mo./Yr.) _____

Monthly Gross Salary $ _____ Daytime Bus. Phone (_____) _____

Previous Employer _____ _____ From - To

Occupation _____

Income from alimony, child support or separate maintenance payments need not be disclosed if you do not wish to have it considered as basis for repaying this obligation.

Additional Monthly Income $ _____ Source: _____

Name & Address of Nearest Relative Not Living With You _____

_____ Relationship _____

B. CREDIT INFORMATION

PLEASE TELL US IF YOU HAVE: Checking Account ☐ Yes ☐ No
Savings Account ☐ Yes ☐ No

	Y/N	How Many?		Y/N	How Many?
Bank Loan	___	_____	Dept. Store Charge Card	___	_____
VISA	___	_____	Credit Union Account	___	_____
MasterCard	___	_____	Other Major Charge Cards	___	_____
Finance Company Loan	___	_____			

C. JOINT APPLICANT INFORMATION

Joint Applicant's Name _____

Soc. Sec. No. _____ Date of Birth ____/____/____

Address _____ Apt. _____

City _____ State _____ Zip _____

Home Phone (_____) _____ Date of Residence _____ (Mo./Yr.)

Joint Applicant's Employer _____ Since? (Mo./Yr.) _____

Bus. Phone (_____) _____ Monthly Gross Salary $ _____

CUSTOMER AUTHORIZATION

I authorize ZEOS International, Ltd. or its assignees to investigate credit records and to report my performance hereunder to credit agencies. I hereby certify that the following information is furnished to you for the purpose of obtaining credit and is true and correct to the best of my knowledge and belief.

Applicant's Signature _____

Date _____

Joint Applicant's Signature _____

Date _____

FOR MARRIED WISCONSIN APPLICANTS:
I acknowledge that the obligation described herein is being incurred in the interest of my marriage or family.

Buyer's Signature _____ **Date** _____

There are costs associated with the use of this credit card. To obtain more information about these costs, call us at 800-421-8942 or 612-635-0613 or write to ZEOS, Z•Card Processing Center, 530 5th Avenue N.W., St. Paul, MN 55112.

NY—A consumer credit report may be requested in connection with this application or in connection with updates, renewals or extensions of any credit granted as a result of this application. If I subsequently ask for this information, I will be informed whether or not such a report was requested and, if so, the name and address of the agency that furnished the report.

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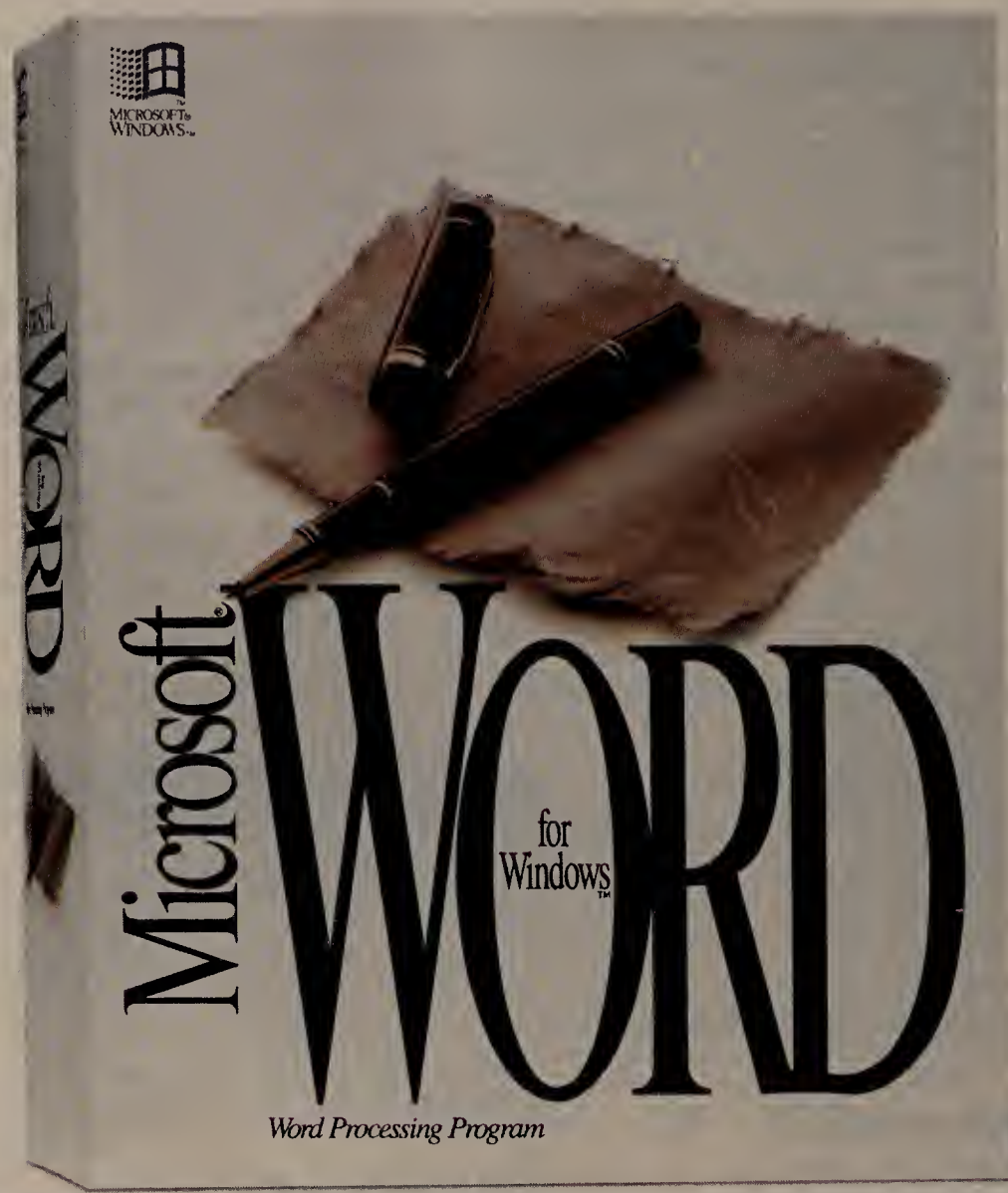
*Financing not available in Alaska, Hawaii or outside the continental U.S.

Circle 324 on reader service card

Microsoft announces the best upgrade for WordPerfect users.



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*As used herein, "DOS" refers to MS-DOS or PC-DOS operating systems. **File conversions available for WordPerfect versions 5.1, 5.0, 4.2, and 4.1. †Plus freight and applicable sales tax. Offer good for current licensees of WordPerfect, Multimate, WordStar, MS Word for DOS and DisplayWrite. Allow 2-4 weeks for delivery upon receipt by Microsoft. Offer expires March 31, 1992. Limit one per customer. Reseller prices may vary. Call for system requirements. Offer good only in the 50 United States. © 1991 Microsoft Corporation. All rights reserved. Printed in the U.S.A. In the United States, call (800) 323-3577, Ext. W93. For information only, in Canada, call (800) 563-9048. Outside the U.S. and Canada, call (206) 936-8661. Microsoft and MS-DOS are registered trademarks and Windows is a trademark of Microsoft Corporation. WordPerfect is a registered trademark of WordPerfect Corporation.

LETTERS

Reactions and responses from the PC World community

ANDREW SHACHAT

Users Getting Bugged

Thanks for giving attention to the bugs that infest many first software releases. Your November Industry Outlook report ["As Software Advances, Bugs Still Remain"] presents both sides of the story, but I don't buy the vendors' argument that today's major releases in general have fewer bugs. Of three purchases I made recently, only DOS 5.0 functioned flawlessly. The other two packages—a font scaler and a backup program, each published by a well-known house—gave me problems. After wrestling with the "improved" versions of my old favorites, I felt as if I'd paid money to become a beta tester! Both vendors ultimately sent bug fixes, but I wish publishers wouldn't rush their programs to market. Now every time I consider a new program, I wonder whether the enhancements will be worth the bug bites.

Rodney T. Bellamie
Indianapolis, Indiana

ANTHONY RUSSO

Another Painful Syndrome

Christine Whyte wrote an informative article about carpal tunnel syndrome (CTS) for November Consumer Watch. I want to let your readers know, however, that some people who think they have CTS are actually victims of myofascial pain syndrome (MPS). With MPS, the forearm or upper arm is usually the site of the pain, but it can also appear in the thumb or palm as with CTS. Besides pain and weakness, MPS symptoms include blanching, coldness, sweating, and swelling or goose bumps. Wrist splints may help with CTS, but they're of little value with MPS. Diagnostic awareness of this ailment is expanding, but people still frequently mistake it for CTS.

Michael S. Margoles, M.D.
San Jose, California

Taking the Right Posture to Avoid CTS

After reading Christine Whyte's remarks about the increased CTS risks associated with bent wrists while typing, I was glad for the tough posture training I had in the 1930s. The good typing habits I learned have stuck with me for a lifetime, and I've always kept my hands and wrists straight. Another important practice you didn't mention is keeping the fingers arched downward, which cuts down on errors and reduces hand fatigue. Years ago, we had only stiff manual keyboards, yet professionals typed as fast and as long as anyone does today. On my first job, I typed five and a half days a week for six and a half years without developing any symptoms of CTS. Years ago, I never heard of a professional having this kind of pain. I suspect that bad posture is the main source of CTS in typists.

James E. Taylor
Brighton, Michigan

Buyers' Guides: Consultant's Consultant

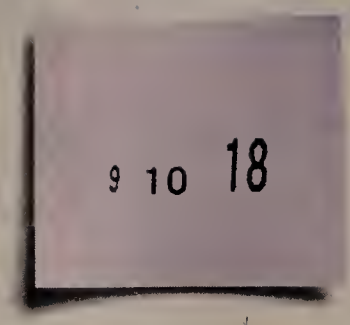
As a computer consultant, I find your buyers' guides a great help. Recently, for example, a client was looking for a 286, and I was having trouble finding one that fit his tight budget. While searching, I got your August issue with its "Buyers' Guide: 286 Systems." I was able to show him information on more than 70 12-MHz and 16-MHz systems, and we selected one in his price range. Then we picked out a printer from the printer buyers' guide in the same issue. Thanks!

Brian T. Bannon
Mattituck, New York

Low-Cost CAD Contenders

I just finished reading your October "Buyers' Guide: Low-Cost CAD," and I think you missed a good bet on the excellent, low-cost NorthCAD-3D 8.2 from The Quest Co., 3117 W. Holland Ave., Fresno, CA 93722; 209/222-5301. This $80 program has enabled me to design a number of fairly technical mechanical parts and fit them together as a completed assembly. Perhaps a more costly program would give me slightly more capability, but as far as I'm concerned, the substantially higher price wouldn't be worthwhile.

Greg Bethards
Sunnyvale, California



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All four feature ESC/P2™, a breakthrough printer control system that, for the first time, brings scalable fonts to dot matrix printing. So now, as you've probably noticed, you can have a real choice of type sizes, instead of the usual two or three. Plus a level of freedom in handling type that other dot matrix printers can only dream of. On top of that, you'll enjoy sharper, more accurate, more sophisticated text and graphics. Advantages that previously were only available from lasers.

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So you could buy another printer. But before you do, visit your nearby Epson Dealer, or call 800-289-3776.

It will make anything else seem, well, pointless.

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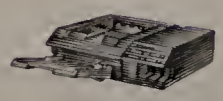
Lasers

Servers

I was delighted to read your "Buyers' Guide: Low-Cost CAD," which listed many more products than I knew existed and included a features comparison with AutoCAD. The information on the programs, contacts, and prices and the postage-free reader service card [for additional information from vendors] were well worth the price of the issue. But I was disappointed that the article didn't offer the same kind of in-depth evaluation and discussion that appeared in the same issue's review of 25-MHz 386 PCs. I wish you had included information on comparative speeds and the look and feel of the programs.

Bernard Echanow
El Toro, California

When we review a group of products, we test and evaluate each one in depth and rate it against the others. Then we make product-specific buying recommendations. With buyers' guides, we increase our breadth of coverage and give information on a wider range of products. While we don't undertake hands-on testing or recommend specific products, we supply general purchasing advice, contact information, and features comparisons. —Ed.

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New Guinness Multimedia Record

We were disappointed to see William Rodarmor's report on the former version of Guinness Multimedia Disc of Records in your November "Buyers' Guide: CD ROM Software." As the developer, along with Britannica Software, we want to let PC World's readers know that a new, MPC-compatible version is available that includes music and sound from more than 70 world-record holders. Both the DOS and Windows versions have completely corrected the deficiencies Mr. Rodarmor criticized: We are using improved search and retrieval software, and we now include more than 300 full-color VGA photographs. For more information, call Britannica Software at 800/533-0130.

Chris Andrews
UniDisc
Capitola, California

Multimedia Authoring Addendum

Dan Miller did an excellent job in his November "Buyers' Guide: Multimedia Authoring Software," but we at Ntergaid were disturbed that our HyperWriter wasn't mentioned. Aimed at the low-end developer, HyperWriter features multiple links for text, graphics, audio, video, and animation. You can create multimedia documents easily with its word processor–like interface, and you can import ASCII and WordPerfect files, PCX, and GIF graphics, and FLI animation files. The program also supports major sound and video boards. In

Performance That Improves With Age.

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Circle 3 on reader service card

addition, HyperWriter has navigational tools, on-screen fonts, and style sheets. Our *Windows* version should be available by the beginning of 1992.

Gary G. Greenlees
J. Scott Johnson
Brian C. Giedt
Ntergaid
Fairfield, Connecticut

Sorry we missed HyperWriter! For more information contact Ntergaid, 2490 Black Rock Tnpk. #337, Fairfield, CT 06430; 203/380-1280, 203/380-1465 (fax). —Dan Miller

Backtracking on Tape Backups

Thanks for the excellent large-capacity tape backup Buyers' Guide in December. *PC World* is the very first publication we've read whose editors clearly understand the difference between the QIC-40/80 and Irwin proprietary Servo formats and explain the importance of backward compatibility and proven upgrade paths. These factors are often overlooked when publications recommend that corporate buyers go out and purchase QIC-40/80 drives without considering their already-existing backup equipment. I did notice a few inaccuracies in your table listings for our new drives, however. Irwin provides a 24-month warranty with the AccuTrak Plus 250, and the Standard 250 works with a high-speed controller. And each drive is built on a 3½-inch form factor and fits in 3½-inch or 5¼-inch bays.

Doug J. White
Irwin Magnetic Systems
Ann Arbor, Michigan

Corrections and Clarifications

Our December high-speed modem buyers' guide should have stated that the Hayes Optima 96 and the Telebit QBlazer each have V.32. On the other hand, the SupraFaxModem V.32bis has V.32bis, and the SupraFaxModem V.32 does not.

Our November "Buyers' Guide: Hand Scanners" included some incorrect information about the KYE International scanners. The GS-4500, GS-B105G, and GS-C105 Plus have a maximum scan size of 4.1 by 14 inches and all have a one-year warranty. The GS-C105 Plus does have a real-time display of scans. It also supports 256 shades of gray, 4096 colors at 200 dpi, and file-format compatibility with TIFF, PCX EPS, MSP, CUT, and IMG. *PC World* regrets the errors.

Send your reactions, responses, and ideas to Letters, PC World, *501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI MAIL PC World Editorial; or 415/442-1891 (fax). Include your name, city and state, and phone number. We reserve the right to edit letters.*

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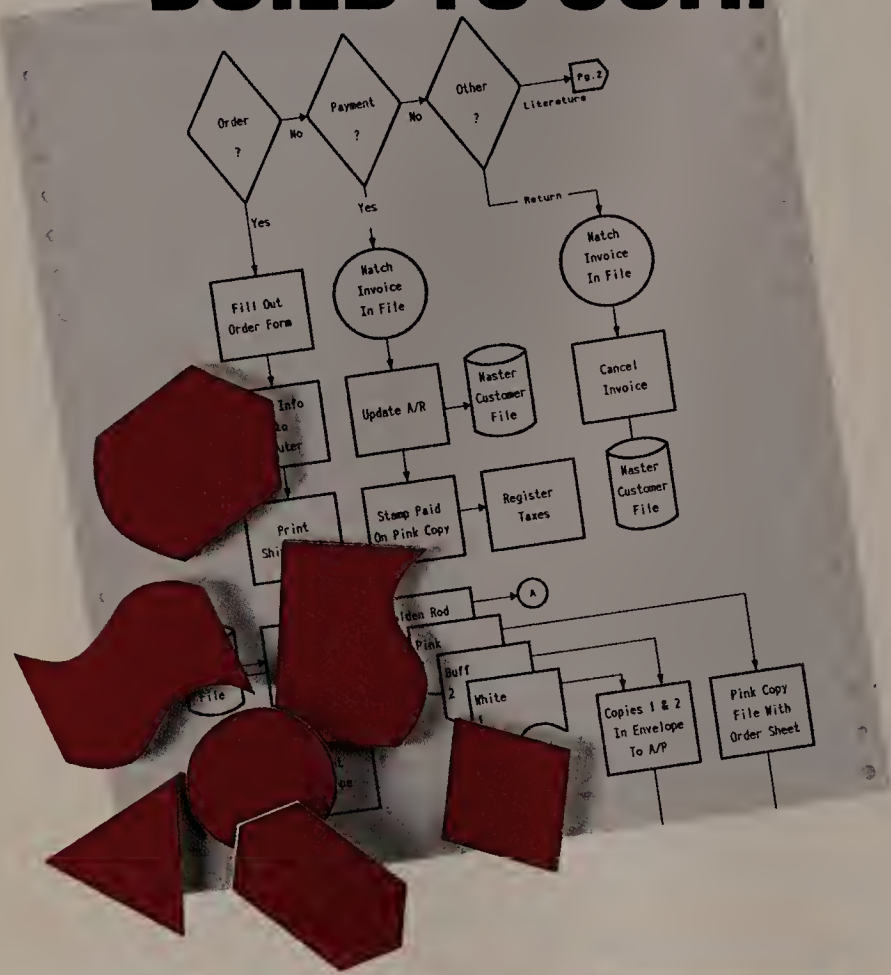

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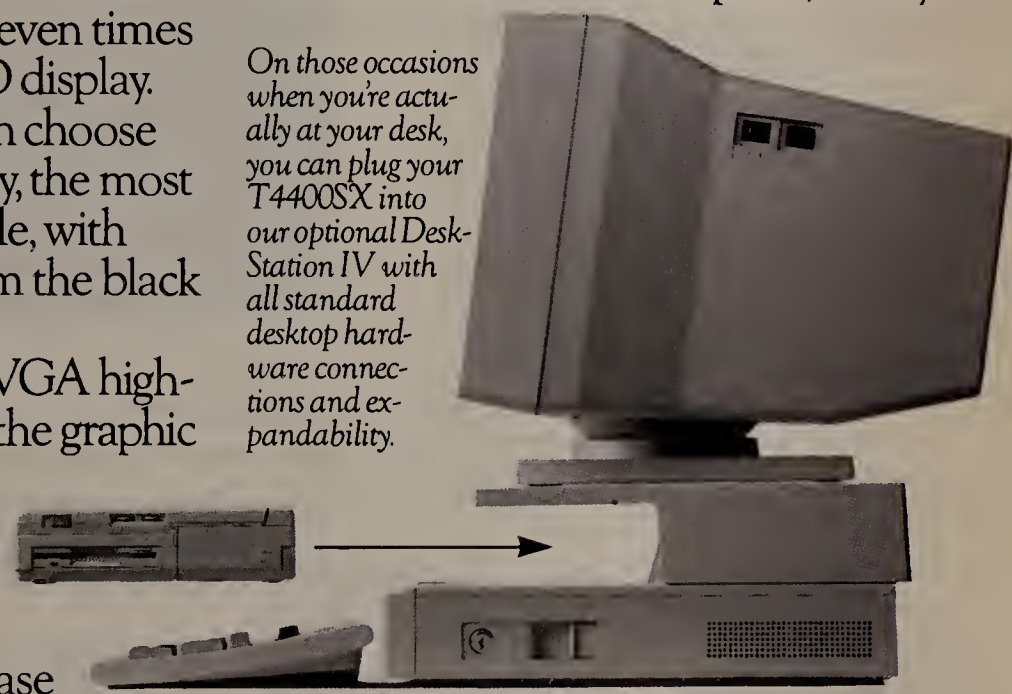

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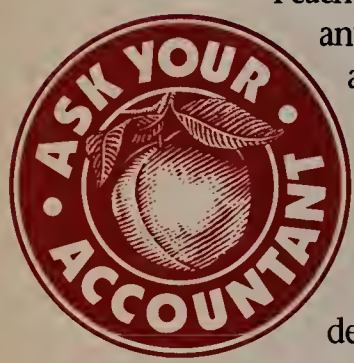

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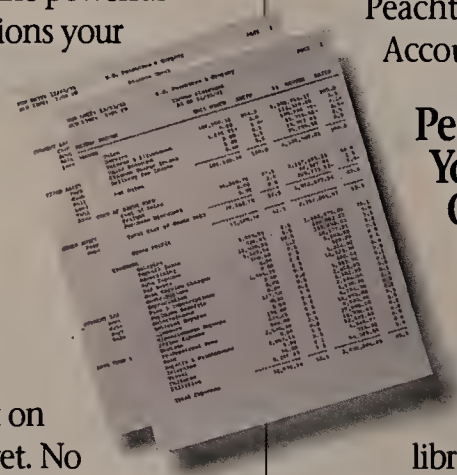

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THE HELP SCREEN

PC World offers answers and advice at every level

Karl Koessel and Robert Lauriston

Dvorak Keyboards Spell Speed

Q. *I've occasionally read references to a "Dvorak" keyboard that supposedly speeds up touch-typing. Does it? If so, where can I get one?*

Ruth Jones
Vancouver, British Columbia, Canada

A. A Dvorak keyboard speeds you up by not slowing you down. When used by fast typists, early typewriters tended to jam. The now-ubiquitous "Qwerty" keyboard was developed to avoid this problem. It made common letters like *E, I,* and *O* harder to reach to slow the typist to a speed the machine could handle. In contrast, a Dvorak keyboard makes the most common letters the easiest to reach. Many people find this gives them a speed boost—though switching can be hard.

You don't need to buy a new keyboard to switch to the Dvorak layout; you can simply reconfigure the one you have. For *Windows* and *Windows* applications, you just open the Control Panel's International dialog box and change Keyboard Layout to *US-Dvorak.* For DOS and DOS apps, you need a keyboard redefinition utility. While you can set up the Dvorak layout using almost any macro program or even ANSI.SYS, it's easier to use the shareware *DvorakKB.* This 1.5K memory-resident program also lets you hot key between Dvorak and Qwerty layouts—handy if you share your computer.

Once you've reconfigured your keyboard, you'll probably want to rearrange its key caps. With most keyboards, you can just pull off the caps and rearrange them as in **FIGURE 1**.

WHERE TO BUY

DvorakKB
FAB Software
P.O. Box 336
Wayland, MA 01778
508/358-6357
LIST PRICE: $21 (5¼ inch), $22 (3½ inch)
Reader service no. 668

Smart Headings for Quattro Pro

Q. *I read the October "Smart Footers" item that told how to include the current path and file name in* 1-2-3 *printouts. Though* Quattro Pro 3.0 *has the same @CELLPOINTER function, it won't accept the "filename" attribute. Do you know of another way to display the current file name in* Quattro Pro?

Mona Baumgartel
Bali, Indonesia

A. The current release of *Quattro Pro* can't automatically print the current file name in a footer. Borland is likely to add this feature in the future; for now you can use the @CURVALUE function to get a similar result. Enter the formula **@CURVALUE("file","save")** in a cell of your worksheet. Then select */Print Headings Top heading,* and set that cell as the top heading range. From now on, the current path and file will print at the top of every page.

Compile Your Spreadsheets

Q. *I recently saw a budget program that appeared to be a predesigned* 1-2-3 *template. However, the program didn't require* 1-2-3 *to run, and only the functions necessary for the template were accessible. We'd like to create such stand-alone spreadsheet applications for our office. How do we do it?*

David Medcalf
Mt. Vernon, Indiana

Dvorak Keyboard Layout

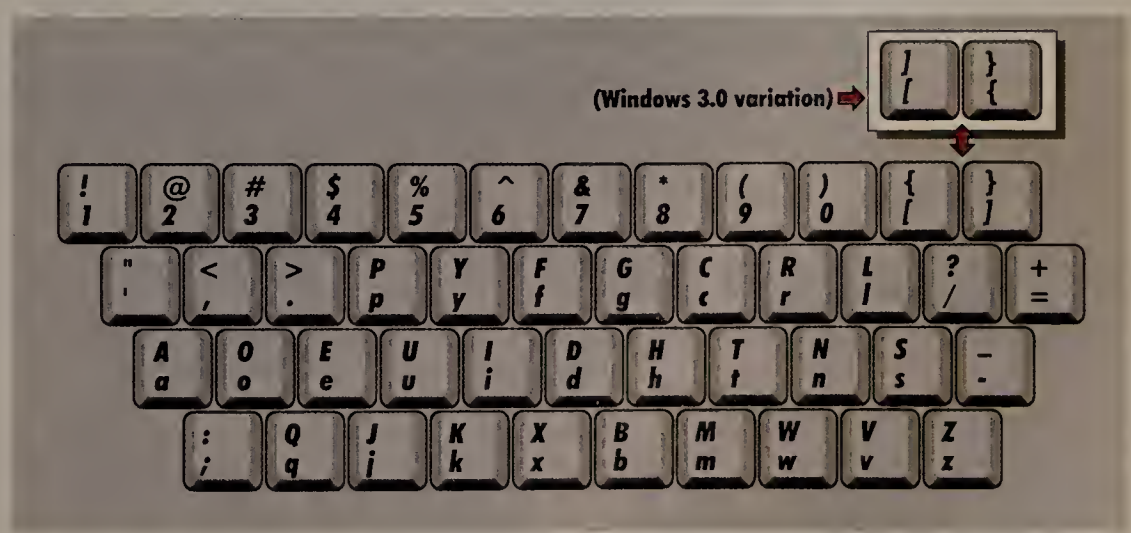
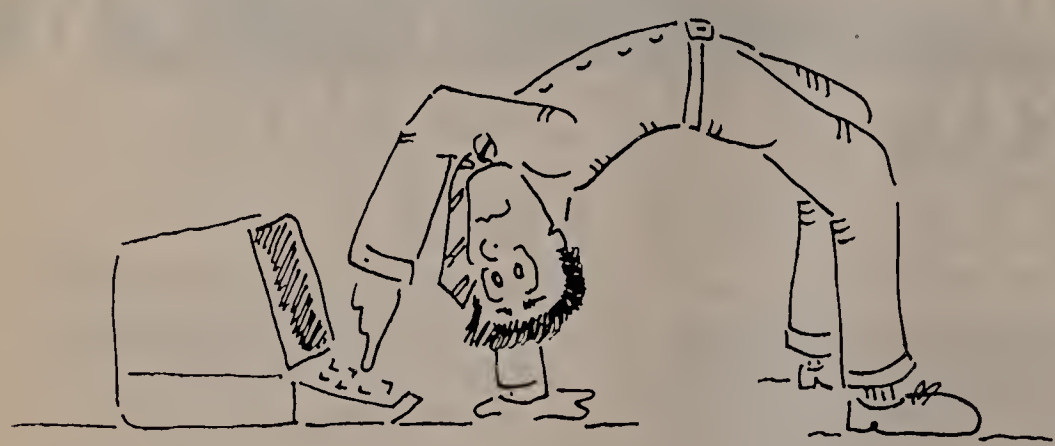


FIGURE 1: The Dvorak keyboard layout is designed to let you type as fast as possible. Photocopy this chart and use it for reference while learning to touch-type with the Dvorak layout.

ANTHONY RUSSO

Facing a Backbreaking Deadline?



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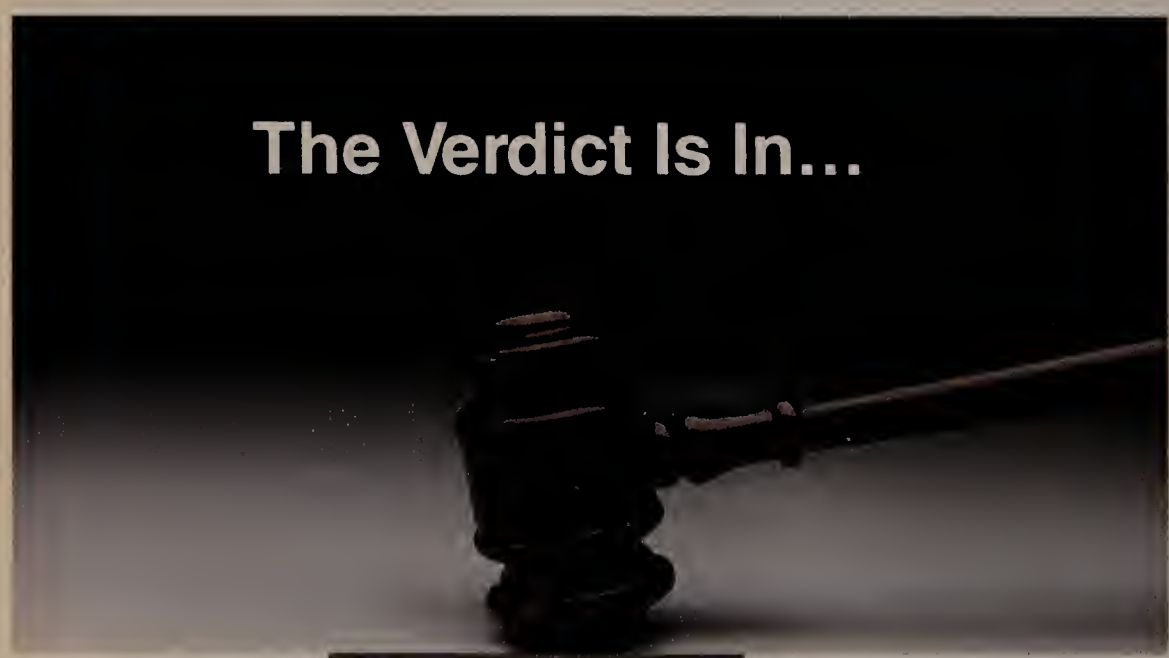

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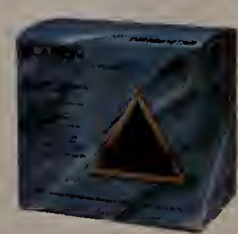

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A. The budget program you saw was created with a *spreadsheet compiler*, a program that turns any WK1-format template into a stand-alone, executable program. You can distribute compiled templates freely, with no licensing fees or run-time charges. Richard Scoville, *PC World*'s spreadsheet columnist, recommends *Baler*.

WHERE TO BUY

Baler 5.1
Baler Software Corp.
1400 Hicks Rd.
Rolling Meadows, IL 60008
800/327-6108, 708/506-1808 (fax)
LIST PRICE: $495
Reader service no. 669

Repartition Your Hard Drive?

Q. *I recently upgraded to DOS 5.0. If I repartition my 80MB hard disk into one big C: drive, will it speed up disk input/output?*

Naeem Saleh
Brampton, Ontario, Canada

A. No. Data stored on the inner tracks of the drive may actually take a bit longer to read and write than it would if your 80MB disk were partitioned into three logical drives. This reduction in speed is due to DOS reading the File Allocation Table (FAT) on the outer tracks of the drive before reading each succeeding cluster. For files with clusters on inner tracks, the head must travel farther (from the FAT to an inner cluster, back to the FAT, back to an inner cluster, and so on) to read the file. However, if your disk is only half full or is managed by a controller that has an on-board cache, or if you use a disk cache or run DOS's FASTOPEN program (which reduces the time required to reread files by holding FAT information in memory), you probably won't notice a difference.

Although it won't improve disk throughput, repartitioning might save time. If you switch between C:, D:, and E: many times a day, having one big C: may make you more efficient.

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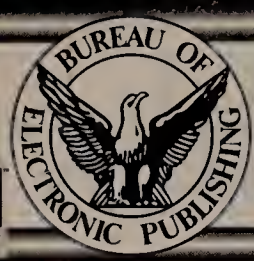

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PC WORLD

Speed Up PostScript Print Jobs

Q. *For graphics work, I use a 33-MHz 386, a Hewlett-Packard LaserJet IIP laser printer with a PostScript cartridge, and* Windows *with* Corel Draw *and* Adobe Type Manager. *Even with 8MB of memory in my PC, many of my* Corel *drawings take as much as an hour to print. How can I speed up the printing process?*

Tom Henriksen
San Francisco, California

A. How fast you can print PostScript graphics depends primarily on your printer; 8MB of system RAM is of little help. And although the IIP is a relatively slow printer, there are several ways you may be able to speed things up.

First, be sure to hook the IIP to the PC with a parallel cable; a serial cable slows things down substantially.

Try unchecking the Use Print Manager toggle in the Control Panel's dialog box. Disabling the Print Manager will lock up *Corel Draw* during printing but will get the job done faster.

Experiment with printing in PCL (the IIP's native mode) rather than PostScript. There are just a few PostScript effects that PCL can't duplicate (*ATM* works in either mode), so the only other difference you'll notice is faster printouts. You can even rotate scanned images in PCL by using Corel Trace to convert them to vector graphics.

If none of this works, try upgrading your printer's memory. HP's default of 2.5MB of RAM for the IIP with a PostScript cartridge isn't really adequate—4MB is a more practical amount.

Turning PostScript On and Off

Q. *We share a PostScript laser printer on our LAN.* PageMaker *and other up-to-date programs work fine with it, but some older software, including a custom* dBASE *program, hangs it up. We also have problems with DOS commands like DIR > LPT1. The printer has Diablo 630 emulation, which works with the older software, but switching between PostScript and Dia-*

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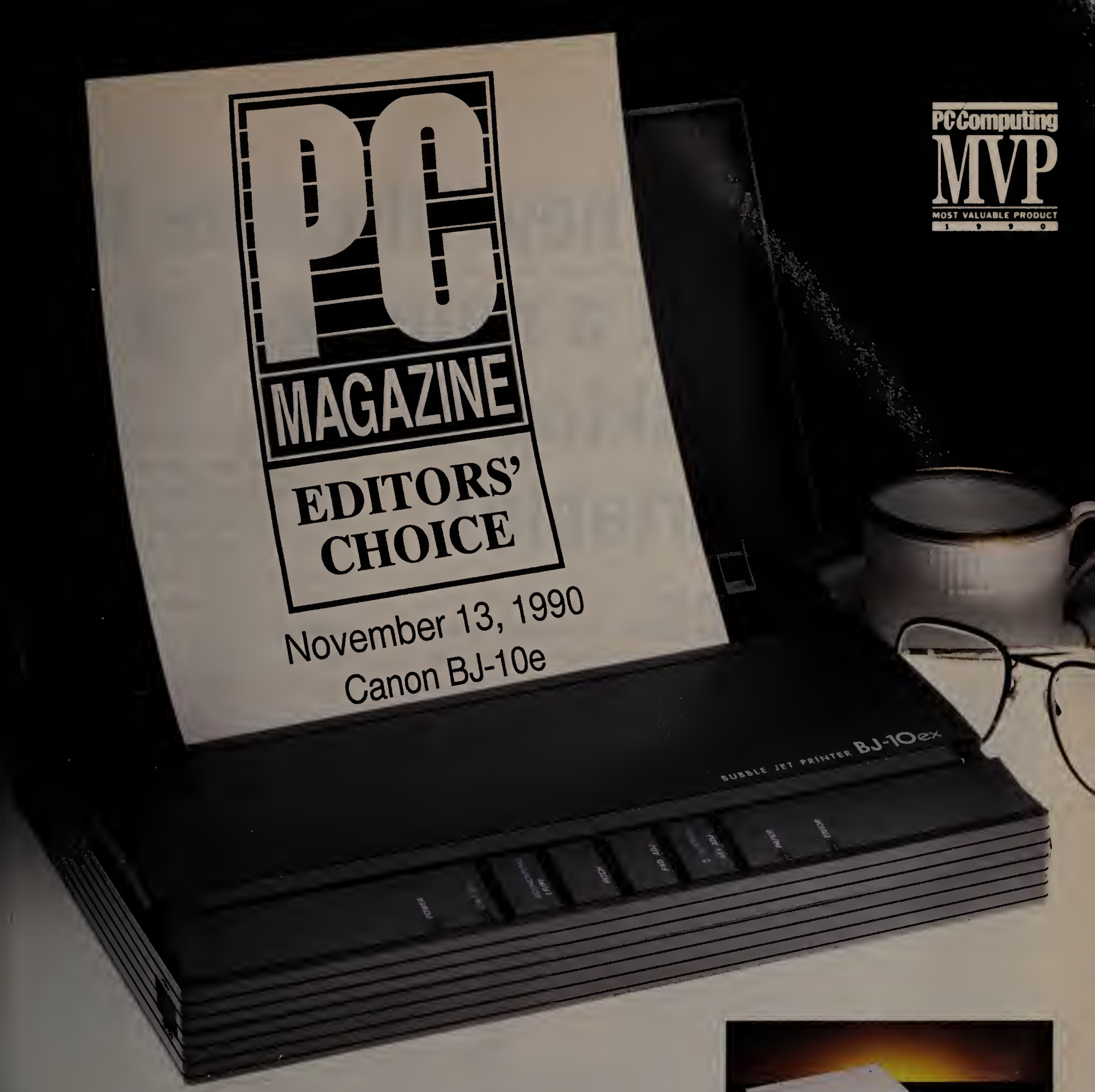

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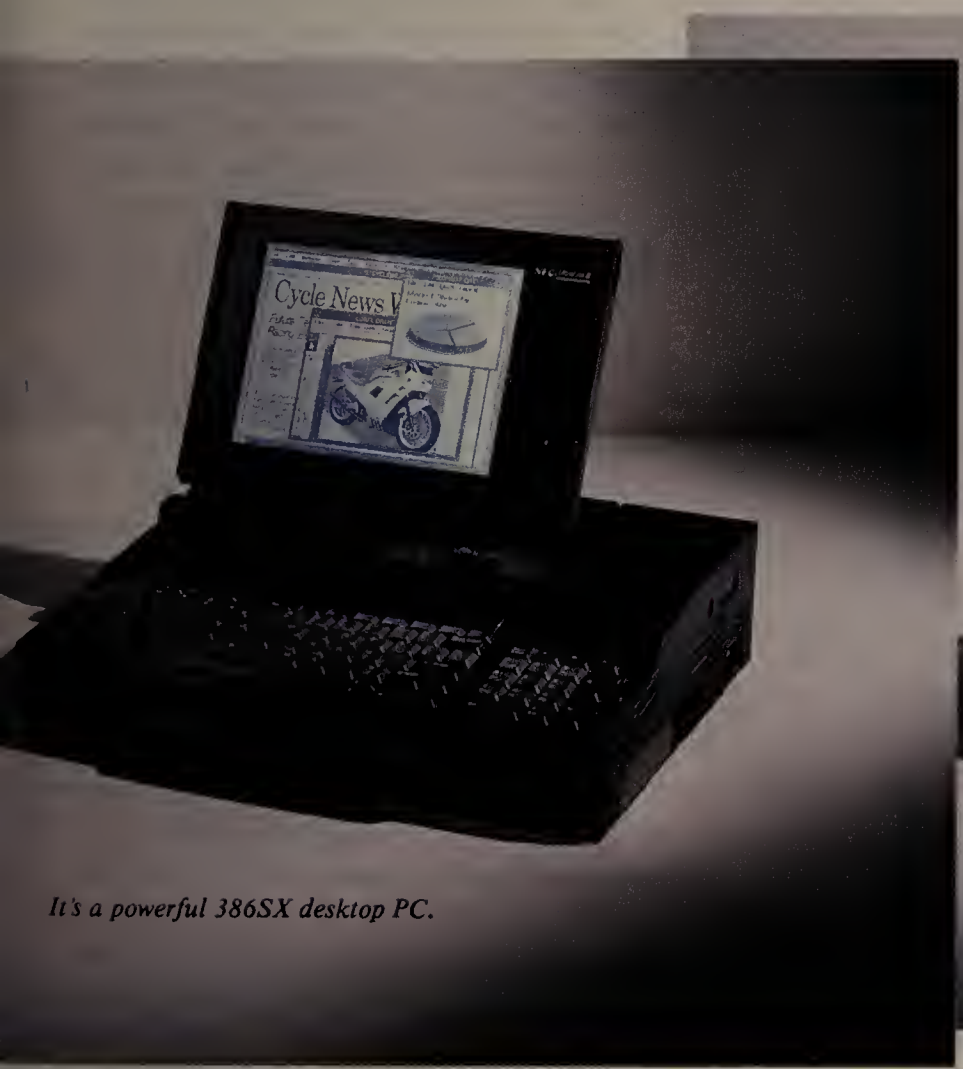

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PC WORLD

blo modes means turning off the printer, flipping a switch, and turning it back on—impossible on a LAN. We'd rather not add a second printer. Is there a way to get this one to work?

Elizabeth Edwards
Portsmouth, Ohio

A. HP LaserJets and compatibles cost much less than they did a few years ago—street prices now start at around $600. But if that expense isn't feasible, your best bet is LaserTools' *Printer Control Panel.* This memory-resident utility senses when you're printing PostScript and when you're not. With text jobs, it either switches your printer into a compatible mode or adds the required PostScript commands.

If you opt to purchase a new PostScript printer with LaserJet emulation or a LaserJet compatible with a PostScript cartridge, *PCP* will sense whether a print job is formatted for LaserJet or PostScript and automatically switch the printer's mode. *PCP* can't switch modes for a LaserJet-compatible printer that's using HP's PostScript cartridge because that cartridge doesn't have a software command to switch modes, but *PCP* can switch modes if the printer uses PostScript cartridges from Adobe and Pacific Data—in fact, it's bundled with those products.

WHERE TO BUY

Printer Control Panel
LaserTools Corp.
1250 45th St. #100
Emeryville, CA 94608
800/767-8004, 510/420-1150 (fax)
LIST PRICE: $149
Reader service no. 670

Printing With Windows and NetWare

Q. *Every day when I start* Windows, *I have to connect to my NetWare print queue manually. Is there some way to make this automatic? Also, is there a way to turn off the banner page that precedes each print job?*

Phil Marquardt
Overland Park, Kansas

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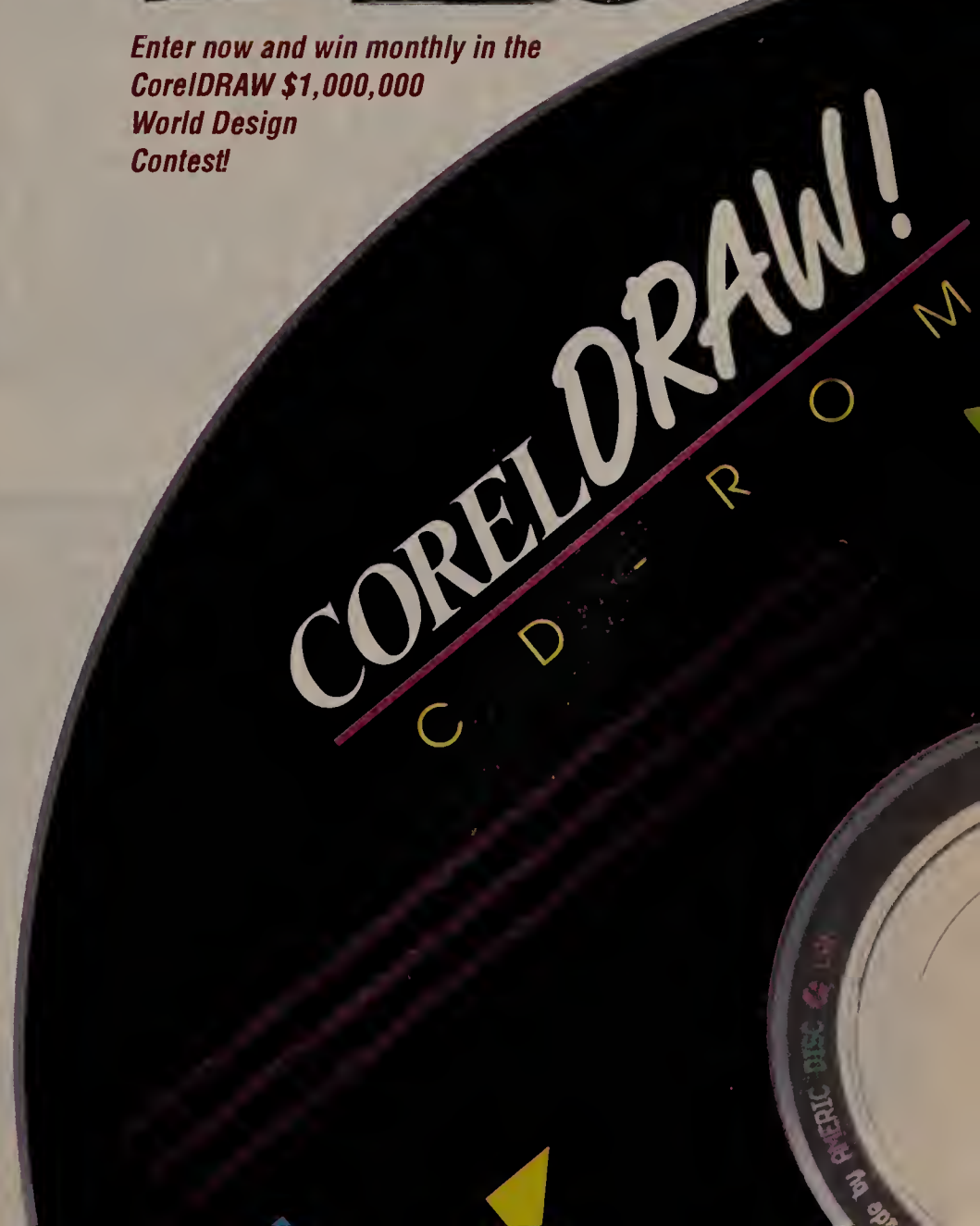

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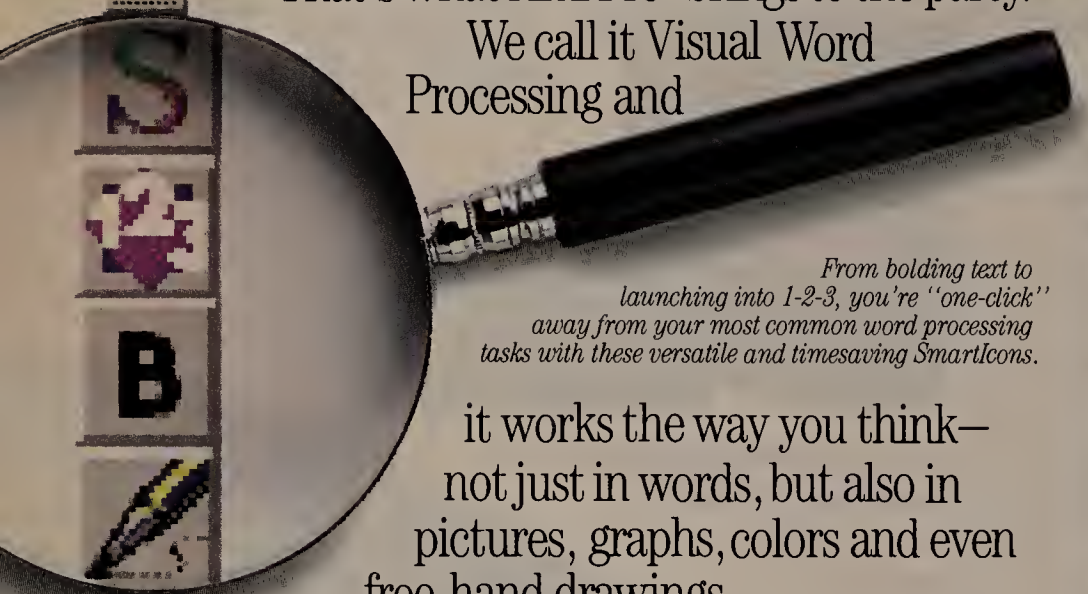
Ami Pro 2.0 will make you feel like a kid and look like a genius.

Imagine word processing where complicated commands are a thing of the past. Word processing with visual cues guiding you every step of the way. Word processing with SmartIcons™ that give you versatile and timesaving shortcuts. That's what Ami Pro™ brings to the party.

We call it Visual Word Processing and

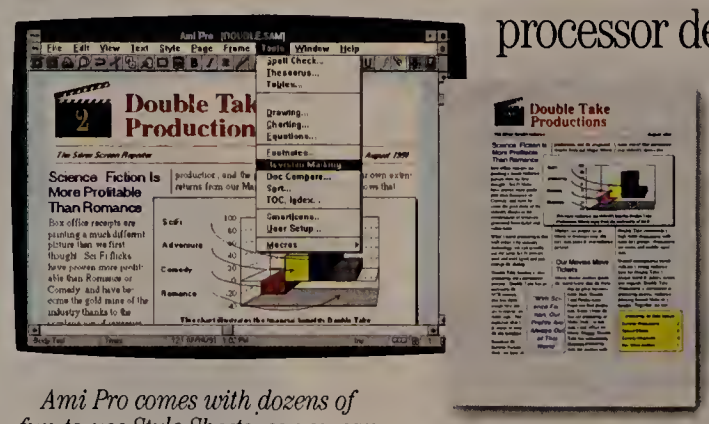


From bolding text to launching into 1-2-3, you're "one-click" away from your most common word processing tasks with these versatile and timesaving SmartIcons.

it works the way you think—not just in words, but also in pictures, graphs, colors and even free-hand drawings.

Ami Pro not only gives life to the work you do, it makes the work you do fun, with innovative features such as charting, equations and image processing.

Naturally, Ami Pro reads and writes the most popular word processing file formats and is integrated with the entire suite of Lotus® Windows™ applications. In fact, Ami Pro works better with 1-2-3® than any other word processor available today.



Ami Pro comes with dozens of fun-to-use Style Sheets, so you can get professionally designed reports, memos and presentations as fast as it takes to type in your text.

Since Ami Pro 2.0 is the only word processor designed from the ground up to work exclusively with the Windows environment, you can now take full advantage of all the rich graphic capabilities of Windows.

In Canada, call 1-800-GO-LOTUS. © 1992. All rights reserved. Lotus and 1-2-3 are registered trademarks and SmartIcons

r bought a word processor
e it was fun. (Until now.)

With award-winning Ami Pro 2.0 for Windows, you can create letter perfect, picture perfect documents in half the time, with half the effort. And with twice the fun.

See your participating reseller

"Ami Pro, always the most intuitive word processor for Microsoft Windows, now also ranks as the most powerful...and [is] better integrated with other Windows applications than anything else on the market."
—PC Magazine, November 12, 1991

for more information or call **1-800-545-6116, ext. 6464** for a free working model.

Ami Pro 2.0 for Windows

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14,400 bps

ZyXEL modems let you talk fast. At 14,400 bps, ZyXEL modems offer incredible speeds at low, low prices. Reliable, error free data transmission is assured at speeds from 300 bps to 57.6Kbps, while offering V.42 and MNP®4 error correction.

V.32bis +V.42bis + Class2 G3 FAX

ZyXEL modems are compatible with a host of high speed modems which support CCITT standards and with Class 2 G3 FAX send and receive. Plus, ZyXEL modems automatically fall back/forward to the destination modem or fax. This allows you maximum throughput and compatibility with industry standard modems.

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- **DTE speeds up to 57.6Kbps with CCITT V.42bis and MNP 5 data compression**
- **Industry standard V.42 and MNP 4 error correction**
- **Class 2 G3 FAX send and receive capability with PC FAX software**
- **Compatible with standard AT Command Set and all popular software**

ZyXEL modems come with a full 5-year parts and labor warranty, a 30-day, money-back "no questions asked" guarantee*, full technical support and on-line ZyXEL BBS Service: (714) 693-0762.

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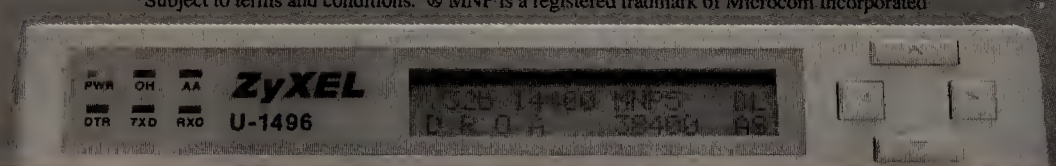

Circle 319 on reader service card

Put Our List On Your List

Our list is the *Consumer Information Catalog*. It's free and lists more than 200 helpful government booklets. So send for the free *Catalog*. It's the thing to do. Write:

Consumer Information Center, Dept. LL, Pueblo, CO 81009

A public service of this publication and the Consumer Information Center of the U.S. General Services Administration

A. You can use a single NetWare CAPTURE command to do both. After logging on but before starting *Windows*, enter **CAPTURE Q=LASERJET NB TI=99**, replacing 'LASERJET' with the name of your print queue. The 'NB' means "no banners"; 'TI=99' sets a timeout of 99 seconds to allow for *Windows'* tendency to pause in the middle of print jobs.

You can add CAPTURE to your AUTOEXEC.BAT file to set up your print queue automatically when you turn on your computer. Just be sure to insert CAPTURE *after* the NetWare log-in command but *before* starting *Windows*. To make this process even more transparent, add it (or have your network administrator add it) to your NetWare log-in script.

You might also want to get your hands on Novell's *NetWare Tools* program. This utility gives *Windows* users a lot more control over network printers, including the ability to turn banners on and off. Check with your Novell dealer or download the file WINUP2.ZIP from Novell's NDD forum on CompuServe.

Excel Update

November's column erroneously stated that Mac and PC versions of *Excel* can't directly read each other's data files. While true for earlier versions, *Excel 3.0* and later versions for the Mac and for the PC do read each other's XLS files; no conversion to SYLK format is necessary. *PC World* regrets any inconvenience this error may have caused.

Send your questions to Robert Lauriston, CompuServe 73707,1731; MCI Mail 381-7106; Internet duck@well.sf.ca.us; or 415/442-1891 (fax); or mail them to The Help Screen, PC World, *501 Second St. #600, San Francisco, CA 94107.* PC World *pays $50 for published questions. Sorry, we cannot acknowledge submitted materials.*

Karl Koessel is the technical editor and Robert Lauriston a contributing editor for PC World.

WE HAVE A FEW WORDS FOR PEOPLE WHO DEMAND HIGH PERFORMANCE AND EXPECT TO PAY PEANUTS FOR IT.

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MORE POWER TO YOU.

You wanted it, you got it.

Introducing the Dell® 486P/20. A computer that gives you an i486™ SX processor at the price of an i386™ DX machine.

An incredible performance boost of up to 40% at virtually no additional cost.

Generating enough processing power to exploit the full potential of future versions of Microsoft® Windows™ and OS/2®.

Making whatever software you run, run that much faster.

Giving you quicker recalcs, database compiles and screen refreshes.

In short, getting rid of excess wait.

And if that isn't impressive enough, the Dell 486P/20 comes with an upgradeable processor that can go from a 20 MHz i486SX chip all the way up to a high-end 33 MHz i486DX system, and even beyond.

Which, considering that we're talking about a computer under $2,000, is nothing short of revolutionary.

A true power user's desktop. For its low price, the Dell 486P/20 has a lot of technical innovations you wouldn't expect to find on even higher end machines. Things like programmable Flash EPROMs, for example, that make conventional methods of upgrading system BIOS seem almost obsolete. You won't have to take this computer apart and lose your patience trying to pry out a reluctant chip. Just slip in a diskette—that's all.

Expanding memory is equally convenient. One of the few PCs to support 16 MB SIMMs, the 486P/20 carries 4 memory expansion sockets, on its main board. So as your needs grow, you can keep adding RAM in 1, 4, or 16 MB increments up to a total of 64 MB. That's plenty of room to run your networking software, Microsoft Windows and just about any high-performance graphics application.

And talking about graphics, a small expansion of video memory to 1 MB (512K is standard) will put over *32,000 colors* at your disposal, letting you create images that approach photographic quality.

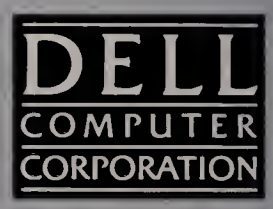
The 486P/20 also makes those images a lot easier on your eyes. It supports up to 1024 x 768 non-interlaced video at a fast 70 Hz refresh rate for a flicker-free display. Unlike the kind you get on some competitive machines that are limited to 60 Hz non-interlaced.

An i486SX processor with the future built in. Because the Dell 486P/20 upgrades via a processor chip instead of traditional processor cards, upgrading takes the form of a single, economical step:

Just remove one chip and replace it with a higher performance version.

On the other hand, if you never need to upgrade at all, you don't end up having paid a price penalty to get the system in the first place. Either way, you win.

Apart from the processor, the 486P/20 is also designed to allow easy upgrading of hard disks, memory and video capability. So when your needs change, the rest of your computer can, too.



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THE DELL 486P/20 20 MHz i486SX SYSTEM.*

SYSTEM INCLUDES 50 MB HARD DRIVE, VGA COLOR MONITOR, AND 2 MB RAM.

THE MORE YOU GET, THE MORE YOU SAVE.

If your requirements call for a more powerful or specialized system than the one we've just mentioned, here's an amazing fact: feature for feature, you can get an even *better* deal with our higher-end i486 systems. From $248 all the way up to a whopping $1,348, your savings increase with the sophistication of the Dell System* you buy. So go ahead, read on. And if you still have any doubts, call us. We'll be happy to explain how the more our i486 systems cost, the less they actually cost.

MORE VALUE

The Dell 486P/20 is a 20 MHz i486SX general purpose workstation you can upgrade to 33 MHz and beyond.

For a configuration that costs so little, you sure get a lot.

Like programmable Flash EPROMs for easy BIOS upgradeability.

And an 80 MB hard disk drive with 15 ms access time.

And an 8 KB cache built into the processor for increased throughput.

And 4 MB of RAM on 32-bit SIMMs with gold-plated connectors for greater reliability.

And 2 floppy drives.

Surprised? Keep reading.

You'll also get a 1024 x 768 14" color monitor with long persistence phosphors.

And the power to display 32,000 colors simultaneously, if you expand video memory to 1 MB.

And factory-installed MS-DOS® 5.0 and Microsoft Windows 3.0.

And a Microsoft Mouse.

And, considering it's from Dell, a whole lot of peace of mind.

That, by itself, is worth a fortune.

THE DELL 486P/20 20 MHz i486SX SYSTEM.*

SYSTEM INCLUDES 80 MB HARD DRIVE, SUPER VGA (1024 x 768) COLOR MONITOR, 5.25"1.2 MB AND 3.5"1.44 MB FLOPPY DRIVES AND 4 MB RAM.

SAVE $248▽

MORE PRODUCTIVITY

The Dell 486D/25 is a sophisticated productivity workstation that was designed with your future in mind. To upgrade from a 25 MHz i486SX processor to a faster processor when available, all you'll need to do is replace a processor chip. Not a card. And starting with 4 MB, you can keep adding RAM up to a maximum of 64 MB.

This new system is priced on par with 33 MHz i386DX machines, yet performs up to 40% faster. And its sheer processing power is amply backed by a 100 MB hard drive with a 32 KB cache for increased throughput. A dual floppy drive completes the excellent storage arrangement.

A 1024 x 768 14" color monitor with a 70 Hz refresh rate gives you a flicker-free display. With 32,000 colors, if you make a small expansion of video RAM. Should anything go wrong, the built-in SmartVu™ diagnostic display can find the problem, even if the monitor goes down.

The 486D/25 comes with six expansion slots and five drive bays for added flexibility. You'll also get factory-loaded MS-DOS 5.0, Microsoft Windows 3.0 and a Microsoft Mouse.

THE DELL 486D/25 25 MHz i486SX SYSTEM.*

SYSTEM INCLUDES 100 MB HARD DRIVE, ULTRASCAN™ 14C MONITOR, 5.25"1.2 MB AND 3.5"1.44 MB FLOPPY DRIVES AND 4 MB RAM.

SAVE $748▽

MORE SPEED

From desktop publishing to spreadsheet applications, there's one feature that's always welcome, and that's speed. With quick recalcs and lightning fast screen refreshes, you'll get your work done faster with the Dell 486P/33.

The 33MHz i486DX processor generates up to 80% more performance than 33MHz i386DX systems. If that leaves you craving for more, you can upgrade to a faster i486 processor when available.

This 486P/33 configuration features a 100 MB hard drive with a phenomenal 15 ms average access time. An 8 KB cache in the processor boosts performance. And dual floppy drives allow you to read any diskette, regardless of MS-DOS format.

A 1024 x 768 non-interlaced big 15" color monitor with overscan gives you 30% more viewable area than the standard 14" you get with any competitively priced system. For even more versatility on desktop publishing or graphic-intensive applications, just expand video RAM to 1 MB and you'll get a 32,000 color, near-photograph quality display.

The system comes with 4 MB RAM on 32-bit SIMMs with gold-plated connectors, MS-DOS 5.0, Microsoft Windows 3.0 and a Microsoft Mouse.

THE DELL 486P/33 33 MHz i486DX SYSTEM.*

SYSTEM INCLUDES 100 MB HARD DRIVE, ULTRASCAN 15C MONITOR, 5.25"1.2 MB AND 3.5"1.44 MB FLOPPY DRIVES AND 4 MB RAM.

SAVE $948▽

MORE GRAPHICS

The Dell 486D/33 has every high-end feature you'd expect in an outstanding graphics workstation. Except a high-end price tag.

There's a superfast 33 MHz i486DX processor, with 8 KB internal cache. For even greater performance, all you'll need to do is replace a processor chip. So you can upgrade inexpensively as soon as new chips hit the market.

Should your workload, heaven forbid, triple by then, you'll still find the 200 MB hard disk more than adequate.

And as your requirements become increasingly more sophisticated, you can keep adding to the 486D/33's 8 MB RAM. With a maximum of 64 MB, there's plenty of room to grow.

Talking about room, we have a large 15" flat square monitor with 30% more viewable area than a standard 14" monitor, which makes those large spreadsheets and high resolution documents much easier to read.

The Dell 486D/33 comes with factory-loaded MS-DOS 5.0, Microsoft Windows 3.0 and a Microsoft Mouse.

intel inside

THE DELL 486D/33 33 MHz i486DX SYSTEM.*

SYSTEM INCLUDES 200 MB HARD DRIVE, ULTRASCAN (1024 x 768) 15C MONITOR, 5.25"1.2 MB and 3.5"1.44 MB FLOPPY DRIVES AND 8 MB RAM.

SAVE $1,348▽

▽Savings calculated from Dell retail pricing as of Dec. 9, 1991. No other discounts apply. Promotional prices expire 2/29/92. All prices and specifications are subject to change without notice. Dell and Dell System are registered trademarks, UltraScan and SmartVu are trademarks and TechFax is a service mark of Dell Computer Corporation. ◊ Leasing arranged by Leasing Group, Inc. In Canada and Mexico, configurations and prices may vary. ☆Contains an Intel™ microprocessor. Intel is a registered trademark and i386, i486 and the Intel Inside Logo are trademarks of Intel Corporation. FORTUNE 500 is a registered trademark of the Time Inc. Magazine Company. OS/2 is a registered trademark licensed to Microsoft Corporation. MS-DOS and Microsoft are registered trademarks and Windows is a trademark of Microsoft Corporation. 1991 J.D. Power and Associates® Computer End User Satisfaction Study, Phase I: Office Based Small to Medium Sized Businesses. Responses from Business End Users at 1,784 business sites. Small to Medium Sized Businesses were based on office sites with between 1 and 499 employees. Best Personal Computer in Office Based End User Satisfaction in Small to Medium Sized Businesses. J.D. Power and Associates is a registered service mark of J.D. Power and Associates. Dell disclaims proprietary interest in the marks and names of others. △Service provided by third party servicer. On-site service may not be available in certain remote locations. Shipping, handling and applicable sales tax not included in the price. ©1991 Dell Computer Corporation. All rights reserved.

Gold-plated SIMMs increase system reliability by eliminating connection-related errors.

There are plenty of companies anxious to sell i486 systems at a low price. All they really need is a supply of parts (the cheaper, the better) and a garage to assemble them in. Once the "production line" gets going, they place a few ads in the paper. After that, of course, it's anyone's guess as to which will last longer: the computer or the "company" it came from.

The 486P/20 is one of the few computers to feature 16 MB SIMMs.

At Dell, on the other hand, we offer lower prices by cutting down on traditional retailer mark-ups, not quality. In fact, we're almost fanatical about the quality of every machine that leaves our state-of-the-art factory. That attitude is reflected in the way we design, test, manufacture and ship our i486 systems.

To see how our i486 systems stand up to air delivery, we use a Black Box. Or, in technical parlance, a portable accelerometer/thermometer. This little device is fitted into a test computer which we then send out through regular delivery channels, much as if you had ordered it yourself. When we bring it back, the "Black Box" tells us exactly what the computer went through, in terms of shock, vibration and temperature. This innovative test is part of a series that's been so successful in helping us improve our packaging, we've won an international award for package design.

Our Black Box test makes sure your Dell computer never arrives this way.

To make our computers more reliable, we cook them. After our computers are fully assembled and configured, randomly selected units are "burned-in" and tested at 104°F.

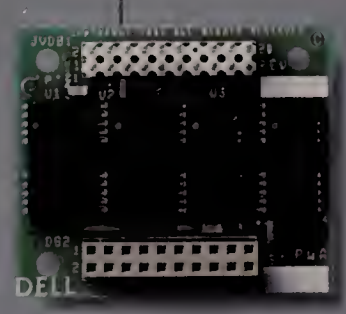
In perhaps the most grueling temperature test we've ever come up with, pilot Dell systems must survive a storage chamber where temperatures vary rapidly between −40°C and +60°C.

JUST BECAUSE YOU PAY LESS DOESN'T MEAN YOU GET LESS.

Our computers have a heart of gold. At Dell, we take quality consciousness so seriously, we fit our i486 systems with SIMMs that have gold-plated connectors. If you're wondering what such expensive components are doing in relatively inexpensive computers, the answer is simple: they cost us a bit more, but by eliminating connection-related errors, they're worth their weight in gold.

It's exactly this kind of commitment to quality control that's enabled us to meet CSA, UL, TUV-GS, FCC and VDE standards, earning worldwide regulatory approvals.

There are thousands of ways to use a Dell i486 system. Dell i486 systems are tested for compatibility with major peripherals, software applications, network topologies and network operating systems, including Banyan and Novell, in several hundred permutations per system. They're even tested for AS-400 connectivity. So you can use our machines in virtually any environment.



A small expansion of video memory gives you over 32,000 colors for a near photographic quality display.

50% fewer opportunities for things to go wrong. After the traditional computer manufacturer builds a system, it goes to the dealer, who then does his own configuring. That's 2 stages of manufacturing, which means twice as many opportunities for things to go wrong.

A Dell i486 system, on the other hand, is manufactured only once. We custom-configure memory boards, network cards and advanced video, testing the system as a unit.

Random Dell computers are "burnt in" at 104 degrees Fahrenheit.

We even load select software packages you buy from us, at no cost to you. That includes MS-DOS 5.0, Microsoft Windows 3.0, and many popular applications programs.

With 20 diskettes and 2 hours to load and configure just one system, imagine the time you'll save and the potential hassles you'll avoid. Which gives you yet another reason to buy a Dell i486 system:

When you open the box, you're ready to go.

And if you think that's rough, consider our shock test. Sample i486 computers are strapped to a guillotine-like apparatus which repeatedly drops them to the ground. This tells us what we can do to improve their shock tolerance level.

Our power supply units undergo an equally rigorous quality control process. In a test that simulates several years of actual usage, randomly selected test units are switched on and off *1,200 times*; only then can they be approved.

While our testing may seem a little extreme, it's based on a rather simple fact: if our machines don't fail with us, they haven't much chance of failing with you, either.

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WE THINK A COMPUTER SHOULD COME WITH MORE SUPPORT THAN THIS.

As a potential buyer, you'll receive lots of attention from most computer companies. Until they receive your check, that is. For all practical purposes, once the sale is closed, so is the company.

At Dell, on the other hand, half our story begins after you receive your computer. Despite our low prices, we've built a reputation for the highest level of support in the industry.

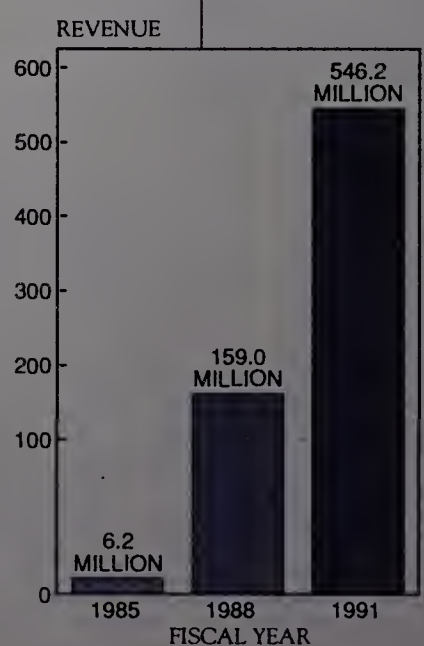
To begin with, a Dell expert works with you to figure out which computer, with which options, works best for you. We help you arrange financing from a wide variety of credit, lease and lease-to-buy plans. Then we test, pack and ship your personalized personal computer to you via two-day air standard.

In the unlikely event that you have a problem with your computer, it won't last long. Our technical support staff solves 90% of reported problems over the phone. Usually in six minutes or less.

You can also get technical help 24 hours a day via our innovative TechFax℠ line. Just dial up and detailed system information will be automatically faxed back to you from the Dell Technical Library.

We even have a special section on CompuServe's PC vendor forum. So you can view other users' problems, and, more importantly, our solutions. But what makes our bulletin board special is that we constantly monitor what goes on there. Which means we can keep track of any small problems, and stop them before they become big ones.

But what if you have a problem that just can't be solved over the telephone?



Dell has built a $546 million dollar business by building a relationship with every customer.

On-site service is an ambiguous term.

To some enterprising vendors, it conveniently means that the replacement parts, and not the service technician, will arrive on-site. Which isn't as crazy as you may imagine; there are any number of do-it-yourself computer whiz kids in this business.

If you don't count yourself among their

ranks, you'll prefer Dell's way of supporting our machines.

If needed, a trained technician can be at your home or office with a solution in hand, usually by the next business day.△

What's more, every time you call Dell Tech Support an entry is made in our customer database. So over time, we'll know your computer as well as you do. Maybe even better.

And you get all this support without getting [illegible]ll. Because the price of your system includes on-site service coverage for a year, and phone support forever.

Buy a computer and get the company.

By standing firmly behind every machine we've ever sold, we've built up a $546 million company in just seven years, one customer at a time.

On the way, we've acquired quite a following. For example, the editors at *PC Week* have described the Dell service and support package as "overkill." J.D. Power and Associates® ranked Dell "Best PC in Customer Satisfaction in Small to Medium Sized Businesses."

We've won *PC Week's* Customer Satisfaction Poll an unprecedented eight times.

And in the last 12 months alone, we've collected 53 product awards, including *PC Magazine's* Editor's Choice, *InfoWorld's* Buyer's Insurance and *PC World's* Best Buy and World Class Awards.

And it's not just the smaller users that are satisfied, either: Dell computers are now used by over two-thirds of the FORTUNE 500.®

Overseas, it's been pretty much the same story. We've more than doubled our overseas sales in the last 3 years in a row, and won in customer satisfaction surveys in the UK, Germany and France.

Still can't decide? Take 30 days to make up your mind. Within that time, if you aren't completely satisfied, just return your Dell system and we'll refund your money, no questions asked.

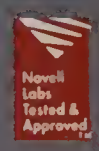
Every Dell Computer comes with a trained computer staff who knows your computer as well as you do. Maybe better.

We're proud to add, though, that this unconditional guarantee has been used so sparingly, only 1.2% of the over half a million computers we've sold so far have ever come back.

What does keep coming back, in ever increasing numbers, are our customers. Over 70% of the people who buy a Dell computer buy another. That's perhaps the strongest statement of satisfaction any manufacturer could ever hope to receive.

So before you buy an i486 system, ask around; there are plenty of Dell users out there. And if there's anything you need, call us. But you'd better hurry.

Great computers may last a long time but great deals don't.



Our 53 product awards in 1991 alone make Dell one of the most awarded PC companies in the world.

Last year, Dell won customer satisfaction polls in the U.S., U.K., Germany and France.

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FAX SHEET

SEND US THE FAX AND WE'LL SEND YOU THE FIGURES.

Fill this out, fax it to us and we'll send back a price quote, spec sheet and any other information you may need on our line of i486 systems.

PROCESSOR
- ☐ i486SX, 20 MHz
- ☐ i486SX, 25 MHz
- ☐ i486, 33 MHz
- ☐ i486, 50 MHz

ARCHITECTURE
- ☐ EISA
- ☐ ISA

CHASSIS
- ☐ Small Footprint
- ☐ Mid-Size
- ☐ Floor-Standing

DISKETTE DRIVES
- ☐ 3.5"
- ☐ 5.25"

MEMORY
- ☐ 4 MB
- ☐ 8 MB
- ☐ 16 MB

HARD DRIVES
- ☐ 50 MB
- ☐ 80 MB
- ☐ 100 MB
- ☐ 200 MB
- ☐ 320 MB
- ☐ 650 MB
- ☐ Other

MONITORS
- ☐ VGA Color, 14", 640 x 480, .39mm dot pitch
- ☐ VGA Color Plus, 14", 640 x 480, .31mm dot pitch
- ☐ Super VGA Color, 14", 1024 x 768, 28mm dot pitch
- ☐ UltraScan 14C, 14", 1024 x 768, .28mm dot pitch non-interlaced, 70Hz
- ☐ UltraScan 15C, 15", 1024 x 768, .28mm dot pitch non-interlaced, 70Hz
- ☐ GPD-16C, 16", 1280 x 1024, .31mm dot pitch
- ☐ GPD-19C, 19", 1280 x 1024, .31mm dot pitch

OPERATING SYSTEMS
- ☐ MS-DOS 3.3
- ☐ MS-DOS 4.01
- ☐ MS-DOS 5.0
- ☐ MS-OS/2 1.21
- ☐ Dell UNIX® System V

OTHER (i.e.: tape drive, network card, mouse or modem)

_____

_____

Name _____

Title _____

Company _____
(If Applicable)

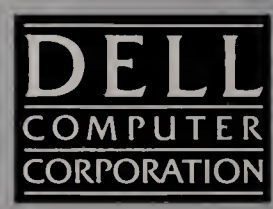
Address _____

City _____ State _____ Zip _____

Fax Number _____

Please have a Dell representative call me at

( ) _____



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FOR MORE INFORMATION, PLEASE FAX US.
#11D64

CONSUMER WATCH

Advice and information for the computer consumer

Christine Whyte

Minuteman Customers Left Hanging

Last month we reported numerous complaints about products bought from but not delivered by two mail-order houses: Stargate Computer and 1 Stop Micro. Since then, complaints have poured in about two other newcomers to the PC marketplace: American Computer Technology of Garden Grove, California, and Minuteman Computers of Costa Mesa, California. In credit reports obtained by *Consumer Watch*, American Computer Technology is listed as a reference by 1 Stop Micro. We have been unable to determine any direct link between the two companies, however.

To date, no one from 1 Stop Micro, American Computer Technology, or Minuteman Computers has satisfactorily responded to the inquiries made by their customers and *Consumer Watch*.

The following stories should serve as a reminder to exercise caution when you're buying direct from an unfamiliar company. Before you buy, make sure you check for complaints filed with the local postal inspector, Better Business Bureau, and attorney general. Protect yourself by paying with a credit card, and notify your credit card company immediately if you are charged for products you don't receive.

Minuteman Computers: Juan A. Pérez-Casado of Hillside, New Jersey, bought a 33-MHz 386 system from Minuteman Computers that included DOS and *Windows 3.0*. Two weeks later the system arrived, but without an invoice. The company charged the system price to Pérez-Casado's MasterCard account. When the hard disk failed a month later, the company sent him a new controller card, which didn't fix the problem. Minuteman told him to return the broken hard disk and they would send him a replacement unit.

"I waited 16 days for the new one to arrive, calling every day," writes Pérez-Casado. "I finally spoke to [someone] who agreed to refund my MasterCard account, but after 14 days no credit was made. I called the company again, and the person who answered the phone told me their credit card processor was down and they could not credit my account."

Pérez-Casado contacted the bank that had issued his MasterCard. Before they could debit Minuteman and credit his account, they required the invoice that Pérez-Casado never received. As of this writing, Pérez-Casado has yet to hear from Minuteman. "They're either 'out to lunch' or 'have gone home for the day,'" he says.

Jay Hendrickson of Mapleton, Oregon, ordered four HP LaserJet III printers from Minuteman Computers and paid with a cashier's check for $6,706.44. The company acknowledged receipt of the check, and said they would ship two printers the same day and the remaining two the next day. Four days after the first two printers were due to arrive, the company told Hendrickson they were on the way. Three days later the company said the printers were shipped the previous day. When the printers hadn't shown up three days later, Hendrickson asked for a refund and was told the owner, John Tremblay, was unavailable to sign a check.

"When we asked for a specific person, the responses were, 'out to lunch,' 'caught in traffic,' 'gone for the day,' 'out on an emergency,' 'at the warehouse and will return shortly,' 'late returning from lunch,' and 'they will return your call,'" says Hendrickson. Despite more than 52 calls to the company, Hendrickson has not received his printers or a refund.

John T. Haritos of Tucson, Arizona, sent a certified check for $986.75 to Minuteman Computers for an HP LaserJet IIIP. "I was assured it was in stock and would be shipped upon receipt of a check," writes Haritos. "I telephoned Minuteman one week later and was told the check was just received. I know the mail is often slow, but it could not take that long to go from Tucson to Los Angeles. I called two days later and was informed that UPS had damaged the printer and returned it to the shipper to be repaired. Continued phone calls have produced no results." Haritos has still not received his printer or a refund.

Yakov Korenfeld of Lawrenceville, New Jersey, received a nonfunctional system from Minuteman Computers that was billed to his Visa credit card account. He paid his Visa bill, but after Minuteman failed to provide help, Korenfeld decided to return the system and request a full refund under the com-

ANTHONY RUSSO

BUG WATCH

Up-to-date information about hardware and software bugs

Corefast 2.x

If you use *Corefast*, a backup program from Core Int'l, in conjunction with On-track Computer Systems' *Disk Manager*, a hard disk partitioner, expect trouble restoring backup files. The backup software appears to work correctly—writing the files to disk or tape—but in fact no backup is performed. According to a Core Int'l spokesperson, the problem stems from *Corefast*'s difficulty in recognizing the way *Disk Manager* writes information to disk. Core is investigating the problem, but no fix is available as of this writing.

Core Int'l
407/997-6055

Microsoft Publisher 1.0

Users of *Microsoft Publisher* report being unable to print gray-scale TIFF images, although the images can be displayed on screen. Microsoft is aware of the problem and, according to a company spokesperson, has developed several possible work-arounds. No fix is currently available, however. Users can obtain information about the work-arounds by logging on to Microsoft's CompuServe forum or by calling the company's product support line. Microsoft expects the maintenance update to be available within the next 30 days. Call the product support line if you'd like to receive it.

Microsoft Corporation
206/454-2030

WinFax 2.0, WinFax Pro 2.0

Having trouble printing faxes under *WinFax* or *WinFax Pro*? Delrina Technology, the program's developer, says that users who set the 'resolution for view' option at 25 or 50 percent may get unreadable printouts. No such problem arises when the option is set at 100 percent. A fix is available. Users of *WinFax 2.0* should first contact the manufacturer of their fax/modem board, since this version is an OEM product only. If you're unable to get help through that channel or if you use *WinFax Pro*, contact Delrina directly.

Delrina Technology
716/855-3676

Have you run into a software bug or hardware incompatibility? Call us at 415/978-3253 with the details. We'll investigate problems and report on those of the broadest interest.

pany's advertised 90-day money-back guarantee. "I was told that upon receipt of the returned system, my Visa account would be credited for the full amount of $2159.28," writes Korenfeld. "To date, one of Minuteman's two checks (for $6.48) for remuneration of shipping charges was returned to the bank because the account was closed. I have tried without success to contact Minuteman via the 800 number to obtain credit. The sales/customer service representatives have informed me that I must speak with a supervisor, and then when I call, I'm told that supervisors are never around." He has forwarded his complaint to the district attorney of Orange County, California, and the Los Angeles division of the U.S. postal inspector.

American Computer Technology: Unlike 1 Stop Micro and Minuteman Computers, both of which continue to do business, American Computer Technology appears to have closed up shop, taking with it the funds of several customers who ordered but never received products. Although we have been unable to reach any of the principals of the company, we are continuing to investigate this matter and will report our findings in next month's column.

William J. Cling of Hudson, Ohio, called American Computer Technology to verify a price on an advertised printer. "That particular printer was on back order, [but I was told] if we faxed a purchase order to them, we would be put on their waiting list. We faxed the purchase order and requested that they get back to us with the total amount to be charged to our credit card. Since then, we have heard nothing. When we try to call, the phone just rings and rings. We managed to get through once, and someone was going to check on our order, but we were cut off in the middle of our conversation." Cling notified his credit card company of the problems with American Computer Technology, and he was never charged for the unreceived merchandise.

Allen R. Alloway of Douglassville, Pennsylvania, canceled his order with American Computer Technology after they failed to deliver his disk drive within three weeks of the order date. At the same time, he informed the company in writing not to charge his credit card for the product. After many attempts, he was unable to contact anyone at the company by phone: "I either get an immediate busy signal or the phone rings for about five minutes and then a busy signal. Hence, I have decided to purchase the product from another dealer."

Walter Stark of Halesite, New York, had a similar experience. "I ordered a Canon printer and a two-bin feeder and was told the shipment would be made within two weeks. After three weeks passed I called to get a status report. Over the past two weeks I have spoken with Eric, Mike Thomas, Gene Evans, Richie Collins, and most recently Jason Collins, all of whom put me on hold, never to be heard from again." Stark has since canceled his order.

Mail-Order Plaudit

I've found CompuAdd to provide top-notch service and support. If you have any problem in the first 30 days, they will airmail a brand-new computer to you and include a prepaid, completed Federal Express air bill for returning the old computer. All you do is put it in the box and call Fed Ex. If you are comfortable with just replacing a defective part, CompuAdd will provide the same service for defective components during the next 60 days.

For the next nine months of the warranty, you may have to send the faulty computer in for service, although extensions of the above "super warranty" are available at a reasonable cost.

This is the only company I know of that pays shipping both ways in such a convenient way. They charge extra for on-site service, but that makes little difference to those of us not "within 100 miles of a service center."

Tom McGrane
Fairbanks, Alaska

(continues)

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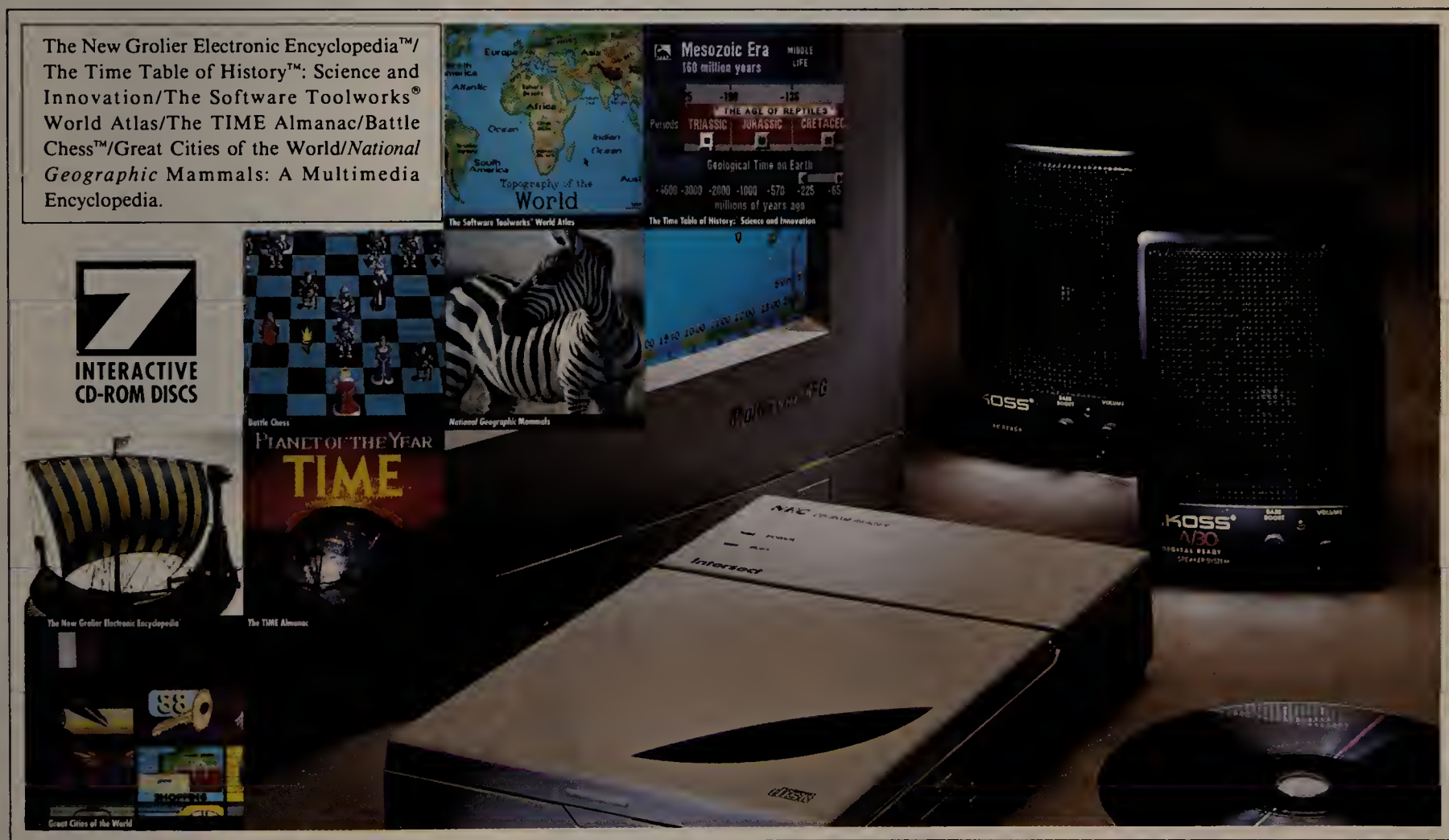

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C&C Computers and Communications

Circle 203 on reader service card

Editor's note: According to CompuAdd spokesman John Pope, the services mentioned above are provided to customers in remote locations in lieu of on-site service.

Two Tales: Paying the Price for Discounted Hardware

I purchased from a discount electronics store an Acer Scanner Model 6671, which I realized at the time was an older model because of its price. The scanner box stated that the product required *Windows 2.0* or higher. Since I was running *Windows 3.0,* I didn't anticipate any problems. When I installed the scanner board and *Scan Studio* software, the software wouldn't work properly. An Acer technical support representative told me their software wouldn't work under *Windows 3.0,* and that he couldn't help me because Acer had discontinued that model and the company was no longer supporting it. I didn't expect Acer to provide first-class service on an older model, but I did expect them to stand behind their product.

David K. Merriman
Irving, Texas

Acer America Corporation responds: The Acer Scanner Model 6671 was one of Acer's early products, developed in late 1986. Product sales were discontinued in mid-1989 due to low sales volume. The software delivered with the product was designed to operate under DOS and *Windows 2.0.* Mr. Merriman's confusion results from the fact that *Windows 3.0* is not an upgrade to the 2.*x* versions of *Windows,* but rather an entirely new release as documented by Microsoft. Since Acer discontinued this scanner model a year prior to the *Windows 3.0* release, we do not plan an upgrade for the scanner software. Acer provides repair services, spare parts, and technical assistance for five years after a product is discontinued. This support does not include updates to the software or firmware except in cases where a serious problem causes the product to not meet its original specifications.

John Hulten,
Director,
Acer/Altos Customer Service

Editor's note: Mr. Merriman's predicament in this situation illustrates the importance of confirming that any hardware or software you purchase will run with your exact system configuration. *Don't rely on the reseller to fill you in on incompatibilities, particularly when you're purchasing from discount stores.*

A few years ago I bought an Amdek Amplott II flatbed plotter from a com-

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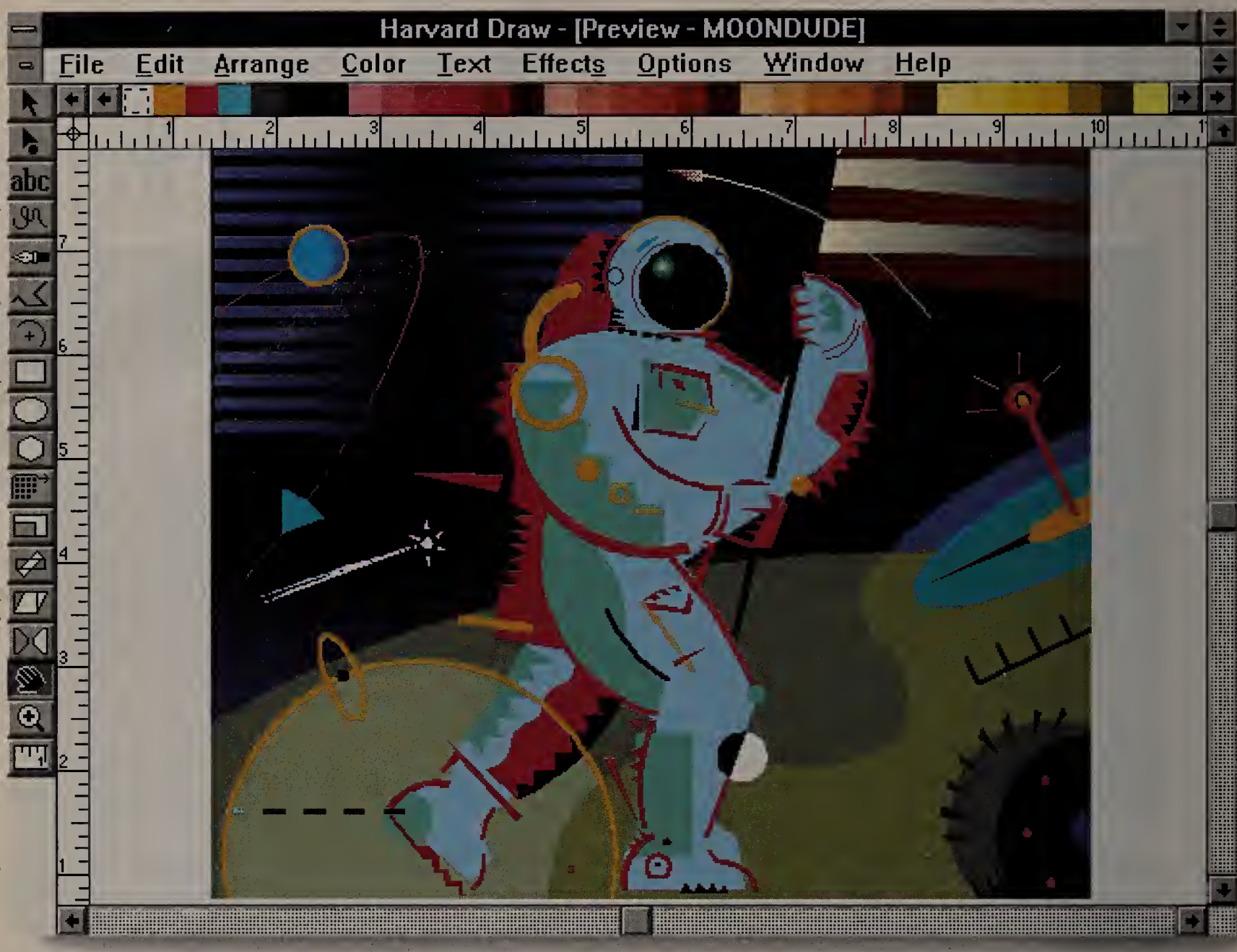

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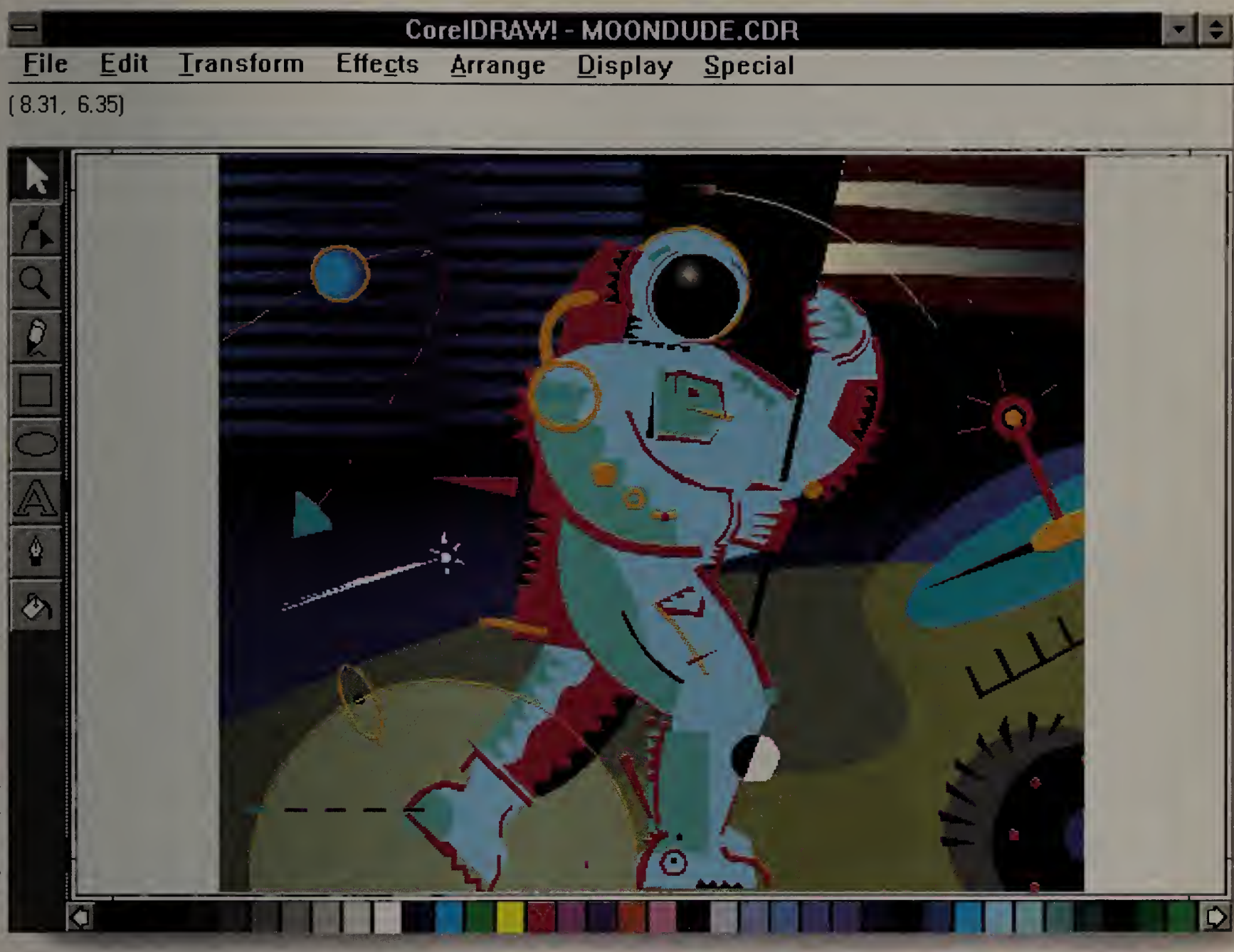

*Timed drawings were created by an experienced CorelDRAW user. For a summary of the test procedure and results write to Harvard Draw Test Results, Software Publishing Corporation, 3165 Kifer Road, Santa Clara, CA 95051

3 hours and 13 minutes on CorelDRAW.

your own conclusion.

of a dialog box. There's a multiple undo option so you can erase up to 16 actions in a row. And our integrated autotrace is right in the toolbox. So you don't have to leave the program to use it.

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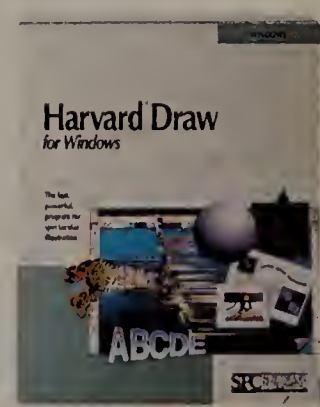

ows demo disk and a NSTL benchmark summary.

SPC SOFTWARE PUBLISHING CORPORATION

pany that had evidently purchased the remaining stock when this plotter was discontinued. That was okay then, because I wanted to use the plotter with *AutoCAD 9.0* and *1-2-3 2.01*, both of which had drivers for it. Unfortunately, the current versions of these software packages no longer support this plotter. I've been able to work around the problem in *1-2-3*, but not in *AutoCAD 10* and *11*. The software necessary to write Autodesk device drivers is not cheap, and Autodesk doesn't write special drivers for their software. Can you help keep my plotter from becoming a large paperweight?

James Basinger
Salt Flat, Texas

Amdek responds: Amdek is a brand name of Wyse Technology, which provides services and support for its products for five years after product discontinuation. We work with software companies to keep current Amdek and Wyse Technologies products up-to-date with recent software releases. However, we do not attempt to keep discontinued products current with ongoing revisions made to the many available software programs.

We were unable to locate an Amdek plotter support group that might be able to help Mr. Basinger, but we did track down a listing of Autodesk User Groups that may be of assistance to him in developing an *AutoCAD* driver.

Bob Goodman
General Manager, Amdek

Think you've gotten a raw deal—or a great one? Send the details to Consumer Watch, PC World, *501 Second St. #600, San Francisco, CA 94107; MCI Mail PC World Editorial; CompuServe 74055,412; or 415/442-1891 (fax). We'll investigate complaints and publish letters with the broadest interest.*

Christine Whyte is a freelance editor in San Francisco.

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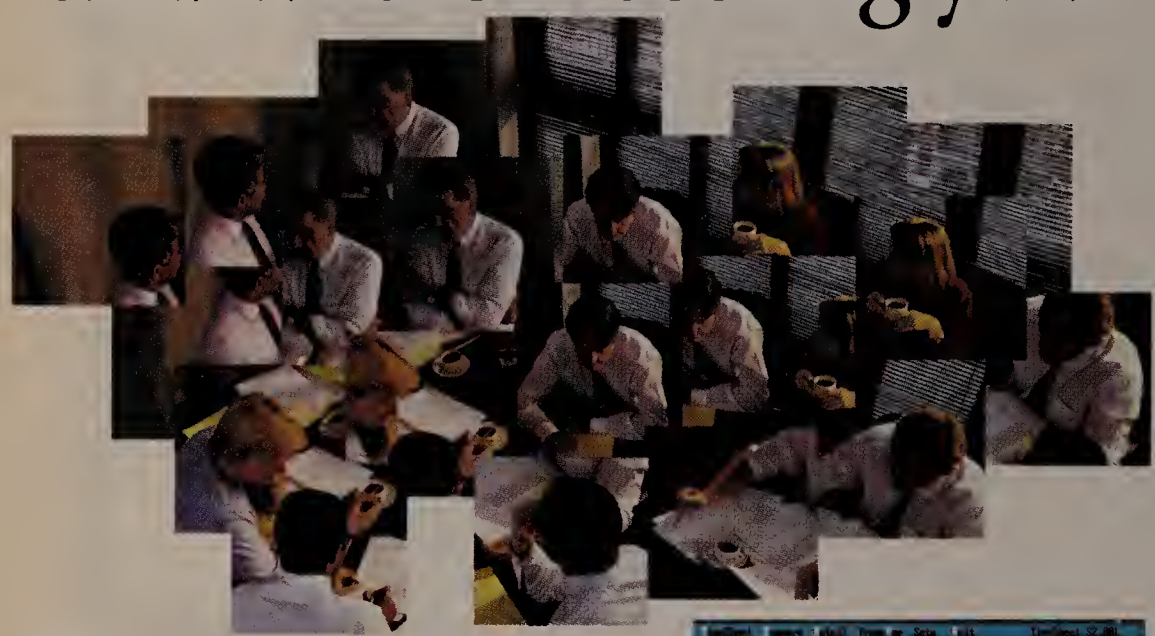

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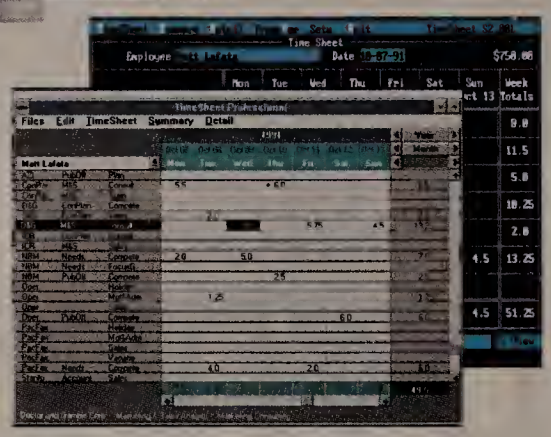

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POWER TIP NO. 235

Dot's a Good Trick for Openers

Ever copy a *1-2-3* or *Word* file without the extension that the application requires to recognize the file? Instead of taking time to rename the file, just place a period after the file name (which indicates there's no extension), and the application will retrieve it.

TJ Byers
Contributing Editor

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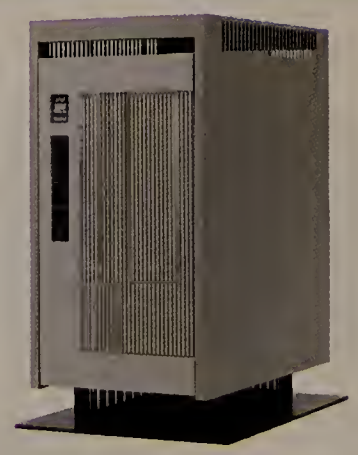

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   ☐ Home ☐ Business ☐ Both
2. If you indicated "business," what is your role in the purchase of computer systems?
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3. What computer products have you been considering?
   ☐ 386SX™-based systems ☐ 386DX-based systems
   ☐ 486SX™-based systems ☐ 486DX™-based systems ☐ Notebooks
   ☐ Dedicated network servers ☐ LANs
4. How many computer systems do you already have at your company? _____
5. When will you most likely make your next computer purchase decision?
   ☐ Less than 3 months ☐ 3-6 months ☐ Within 12 months ☐ Don't know
6. What applications will you be running?
   ☐ Word Processing ☐ Accounting ☐ Spreadsheet ☐ Desktop publishing
   ☐ Database ☐ Networking ☐ Other _____
7. Are you thinking about leasing systems?
   ☐ Yes ☐ No

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Edited by ERIC BENDER

Merger Removes Legal Worries About Language

Borland's Paradox: To Make dBASE Better

Anxious Users Await the Product of Borland's Plans

Picture the *dBASE* user's worst nightmare: Despite promises to support and develop Ashton-Tate's *dBASE* platform, Borland announces plans to phase out *dBASE* and replace it with "generous" upgrade offers for its *Paradox* alternative.

Borland will do more with dBASE than Ashton-Tate did, says supervisor Jack Bradford.

Unlikely? Yes, according to the majority of key customers and analysts. Borland has a lot to win by hanging on to the huge installed base of *dBASE* users. By acquiring Ashton-Tate, Borland gained control of more than 70 percent of PC data base sales, according to Computer Intelligence estimates.

So Far, So Good

Up to this point, Borland has made all the right moves. To win Justice Department approval of its $440 million Ashton-Tate acquisition, Borland dropped Ashton-Tate's lawsuit against Fox Software, which had cast a cloud over use of the dBASE language. Borland also promises both a *dBASE for Windows* product (tightly integrated with its object-oriented, cross-application, Data Base Engine architecture) and a new *dBASE* for DOS this year.

These offerings will integrate Borland and Ashton-Tate technology, says Vice President Rob Dickerson. "Ashton-Tate was working on versions of their own, of course, so we looked at what they had and moved all their R&D guys over here."

"From what I hear, Borland is going to do more with *dBASE* than Ashton-Tate did," says Jack Bradford, programmer and supervisor at the Minnesota Department of Natural Resources in St. Paul. "Ashton-Tate said it was going to do a lot of things, but it was just blowing smoke."

Richard Brenner, president of Westar Systems in Colorado Springs, is less optimistic than Bradford but has no plans to change data base platforms—for now. "All I've really seen are a few press releases, and at this point, none of that means a thing," Brenner cautions. "Borland will have to be very careful in how it handles *dBASE* because there's no guarantee that developers now will stay with *dBASE*." It's important, he says, that Borland come out with either a maintenance release or an upgrade of *dBASE* within six months.

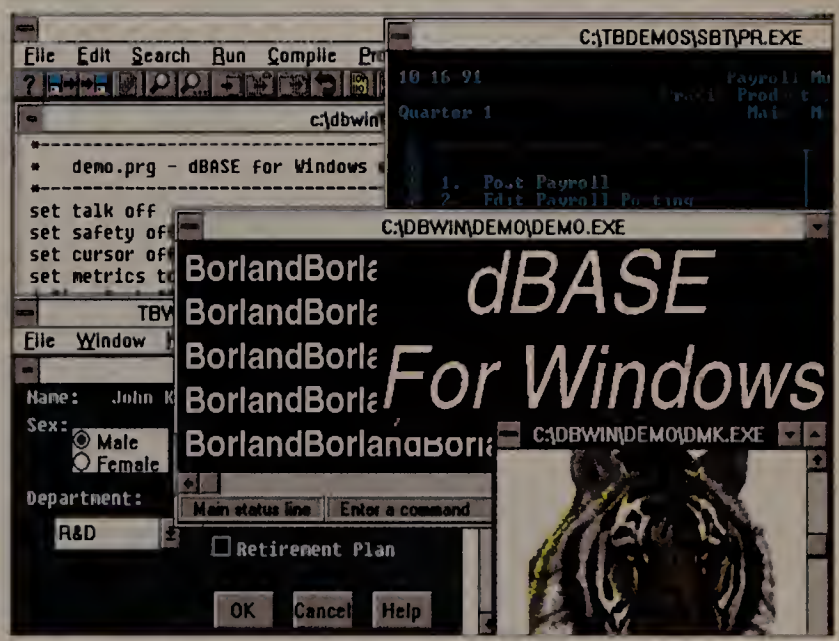
Keith Mitchell, vice president of operations at SOLON Consulting Group in Silver Spring, Maryland, wonders whether Borland will bother to develop and maintain both *Paradox* and *dBASE* over the long haul. He is also concerned about Borland's ability to support *dBASE* with "someone at the other end of the phone who really, really understands the product." Moreover, according to company president Phillipe Kahn, Borland has written its upcoming *dBASE* products from scratch, leaving some users concerned about support for earlier versions.

Liberating the Language

Pat Adams, data base consultant and president of DB Unlimited in Brooklyn, feels that *dBASE* users can rest easy: Borland's acquisition of Ashton-Tate only preserves their investment. "Ashton-Tate, let's face it, was going nowhere," Adams says. "The merger really spurs competition. . . . This makes Fox work even harder."

Indeed, Fox president David Fulton has ambitious plans for *FoxPro* on *Windows* and other platforms, and he is confident his company can take sales away from Borland. The merger of Borland and Ashton-Tate is "very healthy" for users because it resulted in the removal of legal barriers to open competition. "It is now possible for anyone to enter the market," says Fulton. Competition should promote more options for users and ensure that Borland keeps supporting and evolving *dBASE*.

—*Jeff Bertolucci*



The look of things to come. This beta of dBASE for Windows shares many features with the upcoming Paradox for Windows.

STEVE WOIT

Dealing a New Standard—Take Any Card

PCMCIA 2.0 to Create Multifunction, Swappable Cards

PCs keep getting smaller, lighter, and more mobile, but their software and peripherals have been lagging further and further behind.

This problem is particularly acute for palmtop PCs. If you want to transmit data over a modem or network, you must drag along another box and cable. And although you may be able to insert one of those snazzy credit card–size integrated circuit cards that hold application packages, your choices are severely limited because each palmtop requires its own software.

Fortunately, a new standard for integrated circuit cards should turn the situation around. Developed by the Personal Computer Memory Card International Association (PCMCIA) and the Japanese Electronic Industry Development Association, PCMCIA 2.0 establishes a standard for I/O cards in the same socket, moving users closer to the goal—plug-and-play compatibility between cards, regardless of origin.

Card Blanche

PCMCIA 2.0 is "the breakthrough we've all been waiting for, because it creates a new bus for portable computers," explains Ken Dulaney, marketing director for portable products at Grid Systems in Fremont, California. "We now have a standard, much like the AT bus standard, that we can use to create what amount to card cages in portable notebooks and pen-based computers. The freedom that people have when they add boards to their desktop we now have in notebooks and portables."

Users can expect their options to open up dramatically over the next year as vendors rapidly bring to market a variety of modems, network adapters, and cellular and radio transmission cards compatible with the standard. "Until now peripherals have been a big problem for the manufacturer and the user," adds Dulaney. "Every manufacturer has had to create its own modems and everything else. Now with everybody working toward the same goal, we'll see a lot more peripherals for notebooks."

The first vendor out of the gate was Intel, which introduced a 2400-baud modem selling in quantity to manufacturers for $200. Other vendors are offering memory cards, and Sundisk of Santa Clara, California, claims it will market a 16MB card early this year. "I fully expect these cards to become commonplace in no time," says Everett Kaser, a software engineer who helped build Hewlett-Packard's hot-selling HP95LX palmtop.

Price is still an obstacle, however. Intel's 2MB flash memory card sells for $375, while Sundisk's card will cost users about $75 per MB, or roughly seven to ten times the cost of disk drive storage. On the bright side, prices should drop dramatically as volumes ramp up.

Speed and Software Space

PCMCIA 2.0 also provides a standard way for users to execute software directly from the memory card, rather than their having to treat the card as a disk drive and transferring programs over to the system memory.

One advantage of this setup is a dramatic speed boost. A system with such a card "looks like it was instantly turned on," notes Louis Hebert, product marketing manager for Intel's flash memory division in Folsom, California.

The other benefit is a big savings on DOS memory. Poqet Computer of Santa Clara pioneered this approach with an early *1-2-3* card for its portable PC. "Normally *1-2-3 2.2* would take about 280K to 320K of system memory just for the program itself," notes Bill Densham, director of PC Enhancements for Poqet. "The card reduces that system memory requirement down to about 35K to 50K."

However, you shouldn't necessarily expect to plug any PCMCIA card into any system and have it work. You'll need to add the appropriate drivers, as you would when adding a board to your desktop, or vendors will first have to modify their BIOS.

Vendors are working diligently to overcome this barrier as well. Intel has created a single-chip I/O controller, and systems featuring this chip will wear an ExCA (Exchangeable Card Architecture) label that means they have achieved complete swappability. When that milestone is met, swapping cards on the road will be easier than changing boards in your desktop.

—*John H. Mayer*

A new standard for integrated circuit cards and drives provides for multiple functions—applications, memory, and I/O.

A Card-Carrying Standard

Benefits of PCMCIA 2.0 cards

- Provide memory, modem, network connection, other functions—particularly for portable PCs
- Lightweight (1 oz.), small, rugged, low power draw
- Memory cards allow instant start-up and more memory for DOS applications
- IO and memory cards supporting Intel's Exchangeable Card Architecture are interchangeable and compatible across systems

PCMCIA cards will enable the new crop of very lightweight PCs and palmtops to connect easily with corporate networks and data bases.

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Versatility *LC Plus – 512Kb* $595

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6 PCs or Printers/Any Combination

Practicality *LC – 256Kb* $395

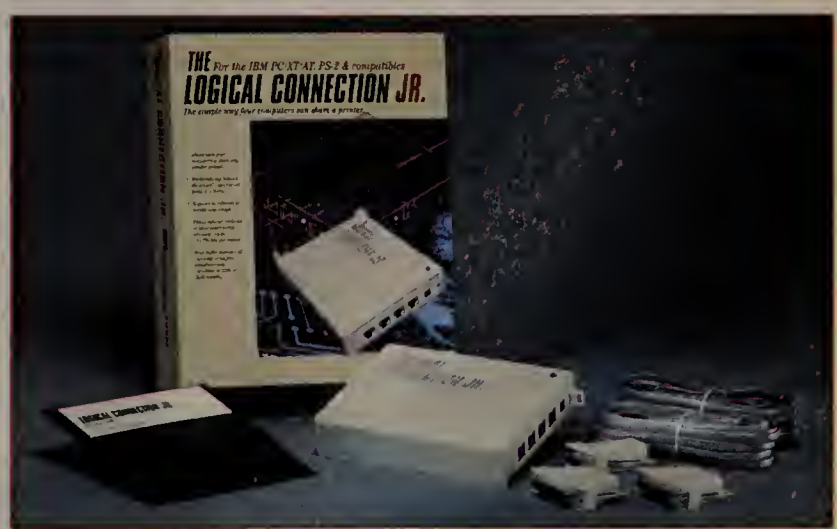
The original Logical Connection is still all the printer sharing device that most people need. The LC is ideal for printing of word processing and occasional graphics data. Its eight ports are: four bi-directional serial ports which can be set as input or output, two parallel inputs and two parallel outputs. Six users can share two parallel printers. The serial ports can also share modems.

6 PCs to 2 Printers (Typical)

Simplicity *LC Jr. – 256Kb* $239

Inexpensive modular cable, even hundreds of feet in length, can be used to serially connect up to four PCs to the Logical Connection Jr. at speeds up to 115,200 bps. Plug your existing parallel printer cable into the LC Jr. and it will automatically convert the data from serial to parallel for fast parallel printing. Multiple users can send data simultaneously since the memory will buffer and queue jobs on a first-in-first-out basis.

4 PCs to 1 Printer



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Fewer PCs Made in United States

Screen Tariff to Accelerate Manufacturing Shift Overseas

PC manufacturers howled last fall when the International Trade Commission slapped a stiff import duty on the active-matrix LCD screens that are now appearing in next-generation portables. Because only Japanese firms build these screens in volume, and the duty is waived on systems incorporating the screens, U.S. suppliers say they will be forced to move production overseas.

Customers won't feel immediate effects from this controversy. Almost all portables today employ passive-matrix LCDs, and no one expects active-matrix screens to be cost-competitive for a few years (today an active-matrix screen adds about $1000 to system costs). But, vendors say, the import duty is another chapter in the saga of the exodus of PC production from the U.S.

Japanese Sharp Corporation is a leading color LCD screen maker. A display tariff may increase U.S. PC manufacturing abroad.

Screening Out Competition

The tariff was imposed after the Commerce Department found Japanese firms guilty of selling active-matrix screens below cost in the United States (active-matrix technology is critical to next-generation computer, television, and imaging systems). Designed to protect a nascent U.S. display industry, the tariff adds a whopping 63 percent penalty to imported screens.

IBM, Compaq, Tandy, and Apple are appealing the decision, arguing that none of the small U.S. display manufacturers can deliver the panels in the quantities needed. By pushing up their costs, these suppliers claim, the tariff makes laptops and notebooks manufactured in the United States too expensive to compete in world markets. "It's not easy to understand why that is good for the United States," says IBM chair John Akers.

Apple has already shifted production of its notebook from Colorado to an Irish facility. IBM officials say they are ready to transfer production for future laptops to Japan. Compaq, which usually manufactures its new high-end systems in the United States, will build the portable 486C in Scotland.

Under Foreign Flags

"The computer business is basically offshore anyway," notes Ken Dulaney, marketing director for portable products at Grid Systems. Toshiba, NEC, and several other leading portable system suppliers are Japanese firms. And although Grid and its parent, Tandy, assemble some systems in the United States, many of their portable and desktop systems are made overseas.

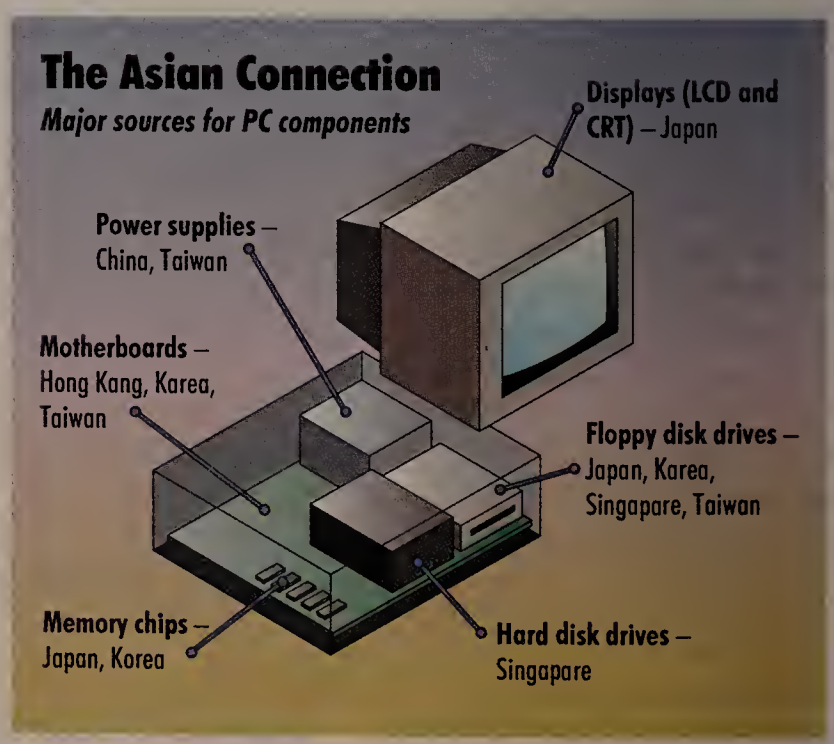
"U.S. companies still have the premier design capability," adds Dulaney. "We still lead the world in microprocessors and disk drives. But once the systems are designed, their components are packaged in kits overseas and are assembled here."

Close proximity to component suppliers is a key reason companies move manufacturing offshore. Most memory and logic chips are manufactured in Japan or Korea, most power supplies are built in Taiwan, most hard disk drives are built in Singapore, and 98 percent of all flat-panel displays are made by Japanese firms (some of these are made by U.S. subsidiaries).

Increasingly, the strongest wind blowing manufacturers offshore is government regulation. "I've heard of people who have gone to Singapore to set up a factory and received all the government approvals in less than a week," remarks Bob Katzive, analyst for Disk/Trend in Mountain View, California. In the United States, that process can take two years.

Environmental regulation has grown particularly expensive as U.S. manufacturers face costs that are not a part of doing business in many other countries. "If you're building boards here, you're not allowed to just dump your waste in the bay," notes Mark Tomco, sales manager for motherboard manufacturer Silicon Valley Computer in Mountain View. "Pollution controls are very expensive, and they simply don't exist or are much less restrictive in other parts of the world." —*John H. Mayer*

John H. Mayer is a freelance writer in Belmont, Massachusetts.



Apart from the CPU and software, most of a PC's parts today hail from the Pacific Rim, drawing U.S. manufacturers offshore too.

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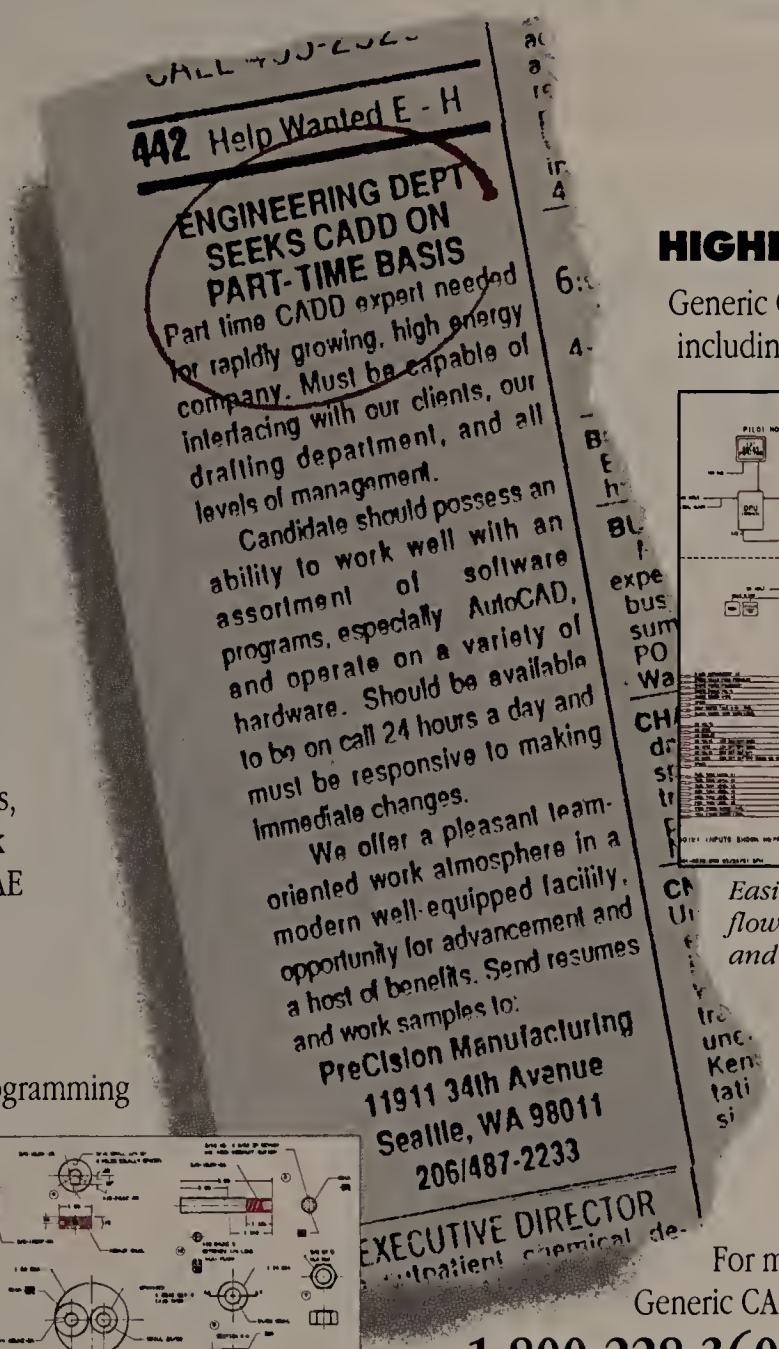

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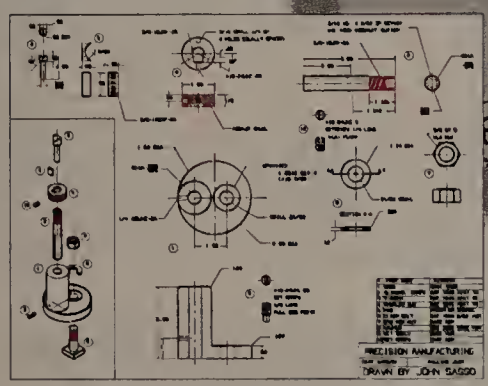

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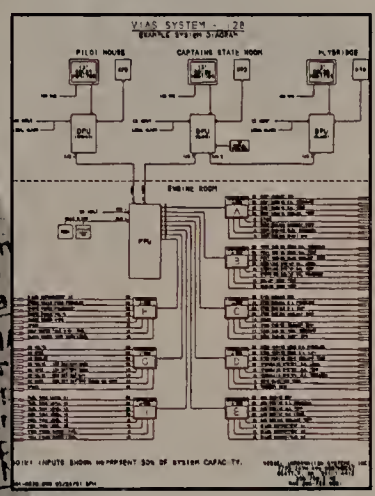

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PC Magazine 12/17/91

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386-33	$2595
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486-33	$2895

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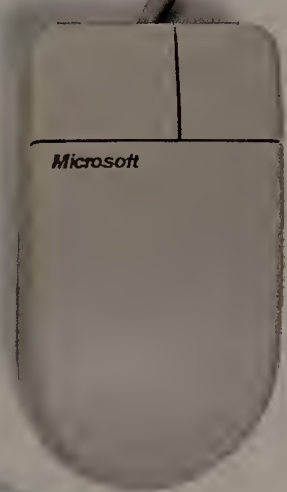

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Circle 311 on reader service card

The AST Bravo 486/25 and Dell System 320LT repeat as the most aggressively priced desktop and portable PCs in the November survey by International Data Corporation.

Best-Sellers

Leading PCs sold through traditional dealer channels

1. *IBM PS/2 Model 55 SX*
2. *IBM PS/2 Model 70 (20 MHz)*
3. *Compaq LTE 386s/20*
4. *NEC PowerMate SX, SX/20*
5. *IBM PS/2 Model 30-286*
6. *Compaq Deskpro 386s/20*
7. *Compaq Deskpro 386n*
8. *IBM PS/2 Model 57 SX*
9. *Compaq Deskpro 386s*
10. *IBM PS/2 Model 35 SX*

The PS/2 Model 55 SX still leads sales through the dealer channel, and IBM has five of the top-selling models, according to Storeboard/Computer Intelligence's October survey.

BARGAINS OF THE MONTH

Over the Counter

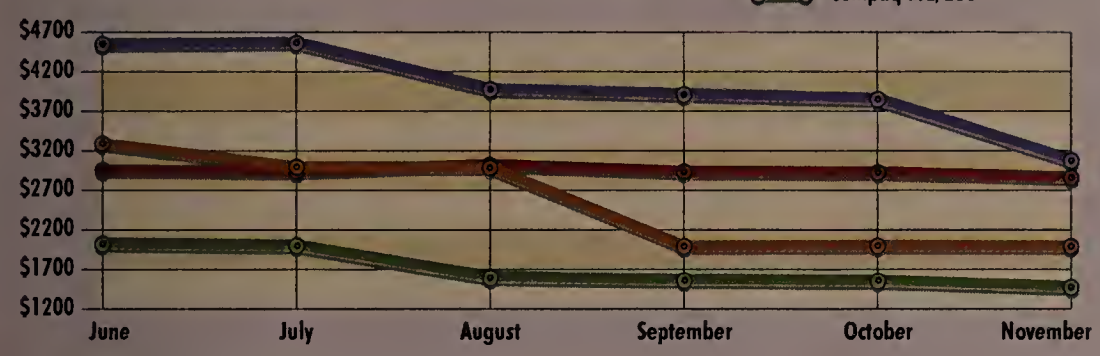
What you pay at retail stores for popular PCs

	Configuration				National				
	Speed (MHz)	RAM (MB)	Hard disk (MB)	Video adapter	List	Average	Boston	Chicago	Dallas/Ft. Worth
80386SX-based desktop PCs									
AST Bravo 386SX/20	20	2	40	VGA	$1695	$1301	$1356	$1356	$1209
Compaq Deskpro 386s	16	2	40	VGA	$2299	$1825	$1935	$1895	$2021
Compaq Deskpro 386s/20	20	2	60	VGA	$2599	$2064	$2190	$2141	$2250
Dell System 320 SX	20	2	40	VGA	$1400	$1400	$1400	$1400	$1400
IBM PS/2 Model 35 SX-043	20	2	40	VGA	$2525	$1900	$1929	$1961	$1971
IBM PS/2 Model 55-041	16	4	40	VGA	$2745	$2045	$2105	$1962	$2213
NEC PowerMate SX/20	20	2	42	none	$1699	$1510	$1565	$1566	$1388
80386DX-based desktop PCs									
AST Premium II 386/33	33	4	210	VGA	$3795	$2886	$3036	$3036	$2812
Compaq Deskpro 386/33L	33	4	120	VGA	$6199	$4907	$5212	$5099	$5160
Dell System 333P	33	4	100	VGA	$2400	$2400	$2400	$2400	$2400
Epson Equity 386/25 Plus	25	2	100	VGA	$3199	$2403	$2525	$2500	$2338
Gateway 2000 33-MHz 386VGA	33	4	200	VGA	$2070	$2070	$2070	$2070	$2070
IBM PS/2 Model 70-A61	25	4	160	VGA	$5475	$4125	$4225	$4259	$4289
Tandy 4033 LX	33	2	105	VGA	$4398	$4398	$4398	$4398	$4398
80486SX-based desktop PCs									
ALR BusinessVEISA	20	5	120	n/a	$4295	$3280	$3268	$3429	$3525
AST Premium II 486SX/20	20	4	80	VGA	$3495	$2703	$2796	$2797	$2633
IBM PS/2 Model 90 XP-OH9	25	4	160	XGA	$6545	$4903	$5000	$4819	$5127
80486DX-based desktop PCs									
AST Bravo 486/25	25	2	80	VGA	$3495	$2684	$2796	$2796	$2643
Compaq Deskpro 486/33L	33	4	120	VGA	$8999	$7093	$7579	$7379	$7300
IBM PS/2 90 XP-OKF	33	8	400	XGA	$12495	$9422	$9521	$9319	$9788
NEC PowerMate 486/25E	25	4	140	none	$7399	$5571	$5875	$5805	$5184
Portables/laptops									
AST Premium Exec 386SX/20	20	2	40	VGA-LCD	$2395	$2163	$2201	$2149	$2200
Compaq LTE/286	12	640K	20	CGA-LCD	$1949	$1474	$1616	$1506	$1448
Compaq LTE 386s/20	20	2	60	VGA-LCD	$4799	$3688	$3843	$3952	$3800
Dell System 320LT	20	2	40	VGA-LCD	$1999	$1999	$1999	$1999	$1999
IBM PS/2 Model L40 SX	20	2	60	VGA-LCD	$3995	$3081	$3076	$3129	$3210
NEC UltroLite 286F	12	1	20	CGA-LCD	$2199	$1564	$1767	$1667	$1592
TI TravelMate 2000	12	1	20	VGA-LCD	$2369	$1452	$1265	$1327	$1304
Tashiba T2000SX	16	1	40	VGA-LCD	$3749	$2862	$3139	$2907	$3024
Tashiba T2000SXe	20	2	60	VGA-LCD	$4499	$3472	$3518	$3430	$3629

From an IDC survey of more than 180 computer dealers in eight metropolitan areas. Figures based on at least four price quotes for each machine. Prices are based on manufacturer's standard configuration without monitor.

Trend Line: Notebooks Steadily Slide

National average street price for selected notebooks over six months



Costs of notebook computers generally dropped substantially in the second half of 1991. Vendors are hoping to move users toward more expensive models—much lighter or more powerful systems with extras like bundled Windows software or fancy trimmings like color screens. But basic 286 and SX systems with LCD screens, which are very close to commodities, are caught in an unrelenting price war.

Metropolitan

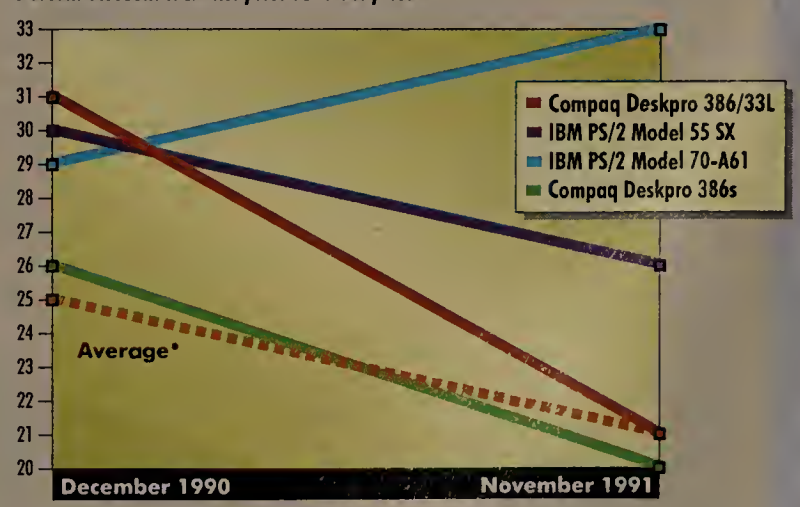
Los Angeles	Miami/ Ft. Lauderdale	New York	San Francisco Bay Area	Washington, D.C.
$1297	$1335	$1288	$1278	$1252
$1829	$1725	$1780	$1772	$1796
$2058	$2006	$2017	$1985	$2018
$1400	$1400	$1400	$1400	$1400
$1850	$1955	$1845	$1868	$1986
$1943	$2089	$2059	$2059	$2115
$1555	$1539	$1439	$1595	$1523
$2664	$2989	$2884	$2861	$2812
$4977	$4584	$4773	$4736	$4896
$2400	$2400	$2400	$2400	$2400
$2302	$2566	$2373	$2452	$2255
$2070	$2070	$2070	$2070	$2070
$3979	$4161	$4106	$4249	$4216
$4398	$4398	$4398	$4398	$4398
$3168	$3389	$3221	$3281	$3350
$2718	$2753	$2656	$2635	$2586
$4772	$4896	$4909	$5053	$4893
$2657	$2753	$2656	$2649	$2576
$7222	$6654	$6929	$6875	$6895
$9077	$9597	$9371	$9646	$9596
$5232	$5715	$5549	$5815	$5362
$2096	$2077	$2017	$2724	$1957
$1566	$1459	$1400	$1516	$1417
$3692	$3434	$3582	$3699	$3674
$1999	$1999	$1999	$1999	$1999
$3021	$3129	$2996	$3114	$3149
$1576	$1566	$1288	$1714	$1610
$1608	$1864	$1179	$1483	$1738
$2958	$3143	$2504	$2921	$2652
$3624	$3761	$3251	$3534	$3283

PC Futures: End-of-the-Year Clearance

Despite the industry's dog-eat-dog price competition, the two Bargains of the Month[1] are repeats: AST's Bravo 486/25 among desktops, Dell's System 320LT among portables. IBM's PS/2 Model 55 SX still dominates sales through dealers, and has been joined on the best-seller list by its likely successor, the Model 57 SX. With the basic SX notebook turning into a commodity, it's no surprise that prices continue to fall substantially. In a typical year, both desktop and portable prices drop noticeably during the fourth quarter, when high volumes of PCs are purchased, and then rebound slightly in the first quarter. In early 1992, given the softness in the PC sales arena, there may be no price rebound. Slowing overseas sales will put additional price pressure on manufacturers here. However, street prices aren't falling as quickly as list prices indicate, because discounts have tightened during the past year.

System Discounts Slim Down

Percent discount from list price to street price



As a rough rule of thumb, PC street prices average one quarter less than list prices. This discount narrowed in the past year, as many manufacturers cut list prices more than dealer prices (which are the real basis for what you pay on the street). Some PCs, such as IBM's aging Model 70 line, bucked this trend with heavier discounts.

[1] Bargains of the Month are determined by adjusting prices on PCs of a given class for standard memory and storage, then finding which PC compares best.
* Average of all Marketplace models.

When Buyers Rate ZEOS:

Support: How Mail-Order Vendors Stack Up

What Buyers Say	CompuAdd Corp. *CompuAdd 325* (with 32K-byte cache) $2,881	Dell Computer Corp.* *Dell System 325P* (no cache) $3,144	Gateway 2000 *Gateway 2000 25MHz 386* (with 80M-byte hard drive, 32K-byte cache) $2,090	Northgate Computer Systems Inc. *Northgate Elegance 386/25* (with 64K-byte cache) $2,839	Zeos International Ltd.* *Zeos 386-25* (includes AmiPro, 1-2-3 for Windows, no cache) $2,540
How long does it take to get a support representative on the phone? (most frequent answer)	1 to 5 minutes	1 to 5 minutes	more than 30 minutes	1 to 5 minutes	1 to 5 minutes
Technical competence of support representative (10 is best)	7.5	8.1	8	7.8	8.1
How long does it take for the vendor to solve your problem? (most frequent response)	Immediate	1 to 2 days	2 days or more	Immediate	Immediate
If your job depended on it, would you recommend buying more PCs from this firm?	12 yes 1 no	13 yes 2 no	12 yes 3 no	10 yes 5 no	15 yes 0 no
Overall rating for service and support (10 is best)	8.3	7.8	7.5	7.8	8.6

NOTES: Customer satisfaction results were compiled from PC Week's survey of PC managers whose organizations have purchased mail-order PCs. 15 customers of each vendor were surveyed.

Prices and specifications shown were supplied by vendors, each of which was asked for a quote on its lowest-priced 25Mhz 386 machine with 4M bytes of RAM, dual floppies, a 100M-byte hard drive, 14-inch Super VGA monitor, keyboard, mouse, Windows and DOS 5.0. Any changes to the configuration or no-cost options are shown. Prices were gathered by calls to each vendor between Oct. 3 and Oct 14, and include tax and shipping charges.

*System is upgradable.

Chart Reprint from October 21, 1991 issue of PC Week. Reprinted by permission.

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ALR's Modular Notebook

VIPs offer a do-it-yourself upgrade path to 486 power.

A panel above the keyboard is the door to easy upgradability for notebooks in the VIP M line from ALR, allowing you to step up to 486 processors.

MICHAEL LLEWELLYN

Mike Hogan

Modularity in PCs is all the rage—matched only by the interest in notebooks. Advanced Logic Research (ALR) has found a way to pull the two together in its VIP line of expandable notebooks.

One day you may be able to upgrade 486-based notebooks by swapping processors; not so 386 notebooks. And pulling chips is not for the faint of heart or fat of fingers anyway. ALR's way is easier. Start out with its inexpensive 20-MHz 386SX, the VIP M 386SX/20. By swapping out the CPU card that sits under a panel above the keyboard, you can turn the notebook into a VIP M 486SX/20 or even a VIP M 486DX/25, which runs about three times as fast as a 20-MHz 386SX.

More Ways to Upgrade

Beneath the CPU panel, you'll find a bay for an optional MNP-5 fax-modem card that lets you send or receive faxes at 9600 baud and data at 2400 baud. Another socket below accepts either a SCSI or scanner adapter. Down another level, a socket on the motherboard allows you to snap in a data compression module that doubles hard disk capacity for most applications. Remove another panel on the underside of the notebook, and you can quickly boost memory to 16MB with standard SIMMs.

In addition to the standard 4MB of memory and 1.44MB floppy, you can choose 18ms 40MB or 60MB hard drives or a 16ms 80MB drive. All VIPs have a 9-inch diagonal paper-white VGA display supporting 32 shades of gray and a graphics adapter that supports 256 colors at 1024 by 768 on an external display. All VIPs sport 82-key keyboards with full-size, fully spaced keys whose 3mm travel will make you think you're typing on a desktop.

The VIPs accept an optional nickel-metal-hydride battery that gives 25 percent longer battery life than nickel-cadmium. But even with their standard 16 AA nickel-cadmium batteries, you should achieve almost 4 hours of uninterrupted computing. The AC adapter, which measures 3½ by 5½ by 2 inches and weighs about a pound, recharges within 2 hours whether or not you're using your notebook.

These machines are a little beefy compared to the new 5½-pound notebooks, but at 7.2 pounds and 11¾ by 8½ by 2¼ inches, they aren't briefcase busters. They won't bust your budget either. The SX is about the same price as most other SXs, while the 486 and the low-power SL models are $500 to $1200 cheaper than comparably configured systems. ●

Mike Hogan is a senior editor for PC World.

SNAPSHOT

VIP M Line

This line lets you change processors and peripherals.

KEY FEATURES

- **386SX/20, 486SX/20, 486SX/25 CPU cards**
- **Optional 9600-baud fax card with 2400-baud modem**
- **7.2 pounds**
- **Paper-white VGA display supports 32 shades, 1024 by 768 external monitor**

AVAILABILITY

January 1992

PRICING

40MB VIP M 386SX/20 $3495; 40MB VIP M 486SX/20 $3995; 40MB VIP M 486DX/25 $4495; add $200 for 60MB hard drive, $300 for 80MB drive

Advanced Logic Research
9401 Jeronimo Ave.
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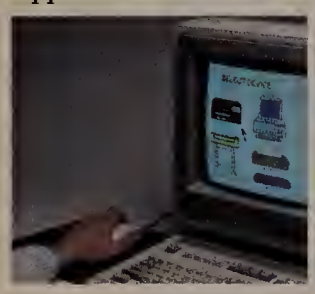

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Expansion Module with Printer Select Switch ..... $149 ea.

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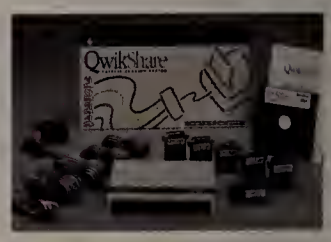
BASIC



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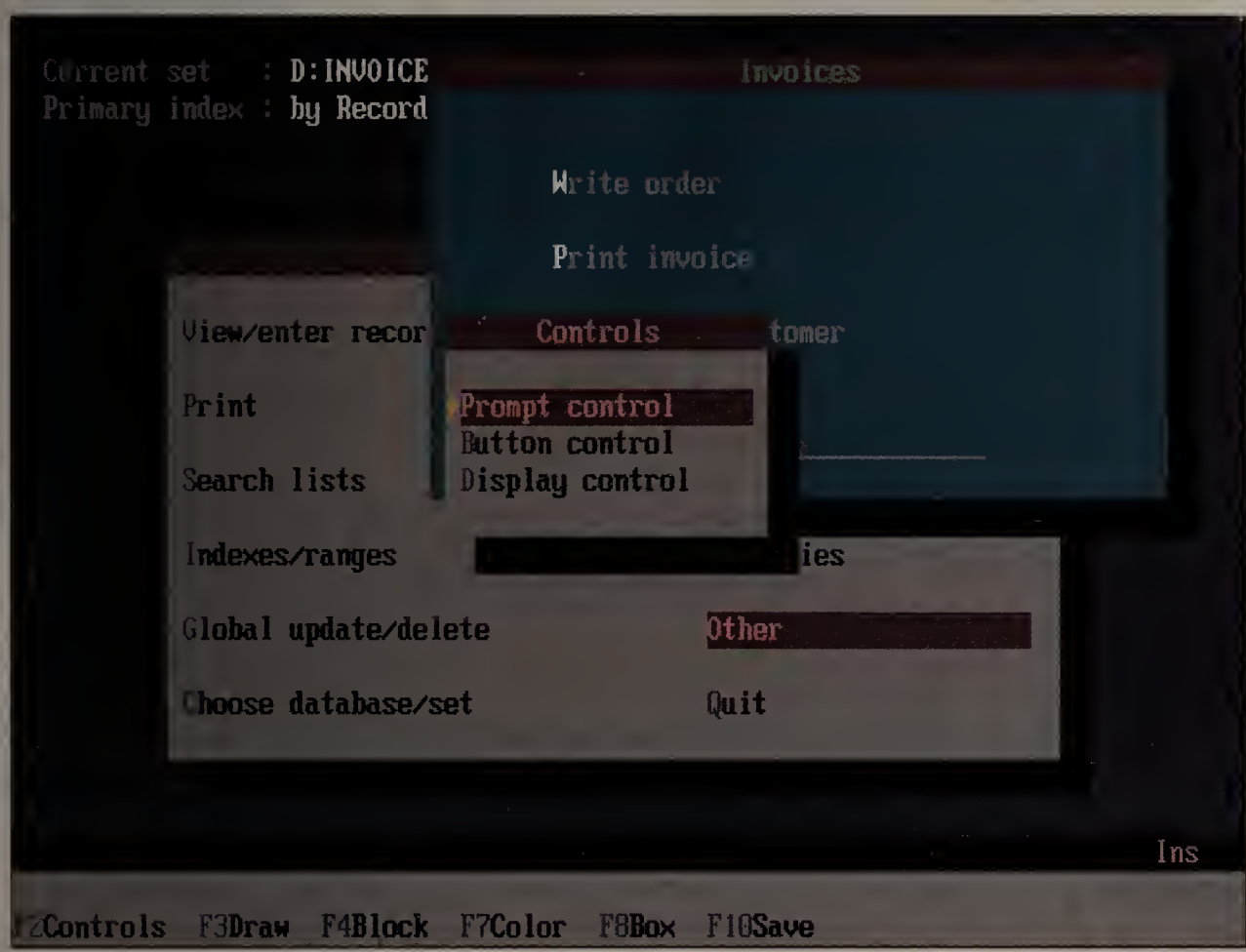
Alpha Four Joins the Network

Transparent network support and a script language make this personal data manager a robust multiuser tool.



You can create and edit dialog boxes in Alpha Four 2.0, although you'll miss mouse support.

Lincoln Spector

With its dBASE file and syntax compatibility, menu-based interface, and near-full relational powers, *Alpha Four 1.1* was a good choice for non-networked users who wanted to handle data the dBASE way without writing code. By adding network support and a simple scripting language, Alpha Software has made *Alpha Four 2.0* a viable tool for work groups, too.

Unlike past versions, *Alpha Four 2.0* allows you to set up a multiuser application without even thinking about it. According to Alpha Software, all you do is put the network version of *Alpha Four* on your LAN, and the required file and record locking will happen automatically (though you will have to set up security restrictions). *Alpha Four* even updates on-screen data at set intervals, so that one user will see another's changes shortly after they happen.

Following the Script

Alpha Four still doesn't let you code complex applications, such as a corporate accounting system, but managing a small business inventory is no problem. In addition, you can now create "scripts"—powerful macros that you can run from anywhere in the program. You can record or write scripts, make scripts call other scripts, use If and Case statements, store information in memory variables for future use, and even draw dialog boxes with prompts and buttons.

But don't put too much into a script, or you may get lost. The scripting language notes the keystrokes rather than what the keys do, which means your code will say something cryptic like "LFS" when it means something simple like "Layouts/Forms/Select." If you really get stuck, though, it's easy to call a more programmable data manager, such as *dBASE IV* or *Fox Pro*, from inside a script.

All this is possible thanks to version 2.0's improved memory managment. When you shell to DOS or another program, almost all of *Alpha Four* is removed from main memory to give the other program room —so you'll get fewer annoying "out of memory" errors.

Colorizing an Old Style

Unfortunately, the *Alpha Four* user interface shows its age. The full-screen, hierarchical menus and complete lack of mouse support make this program unnecessarily clumsy (you'll really want a mouse when you design a form or dialog box, for example). And you still have to use a statement-building query tool instead of the easier query-by-example.

On the bright side, the program lets you do great things with color. You can assign colors to 20 parts of your screen, but you can play with the VGA color palette, making your copy of *Alpha Four* as lovely or ugly as you like.

No matter what colors you use, you'll find *Alpha Four 2.0* a more powerful and practical program than previous versions. You wouldn't want to automate your whole company with it, but this former personal data base is now a great work group tool.

Lincoln Spector is an associate editor at PC World.

SNAPSHOT

Alpha Four 2.0

This dBASE-oriented personal data manager can now manage work-group data on a network.

KEY FEATURES

- **Transparent network support**
- **Powerful scripting language**
- **Better memory management**
- **Full color control**

AVAILABILITY

December 1991

PRICING

Single user and LAN pack $549; multiuser editions (required in addition to LAN pack): three-pack $749, five-pack $1249, 30-pack $4995

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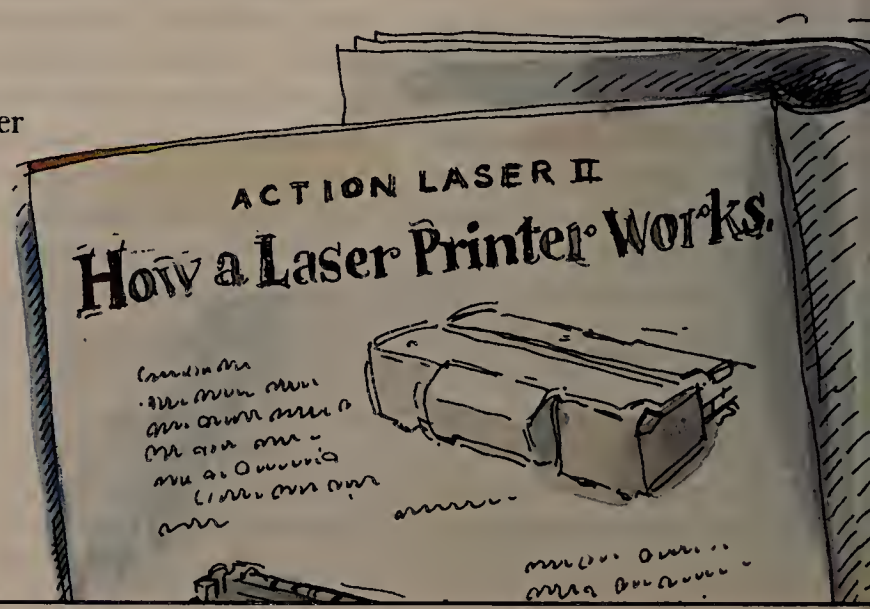

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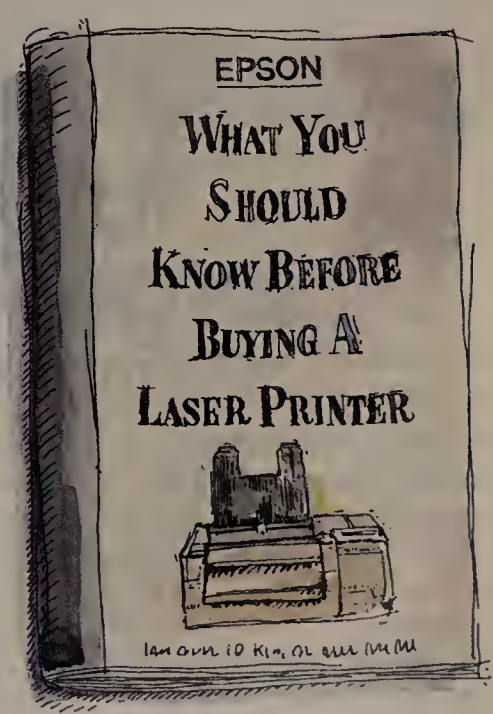

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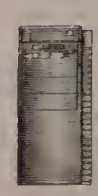
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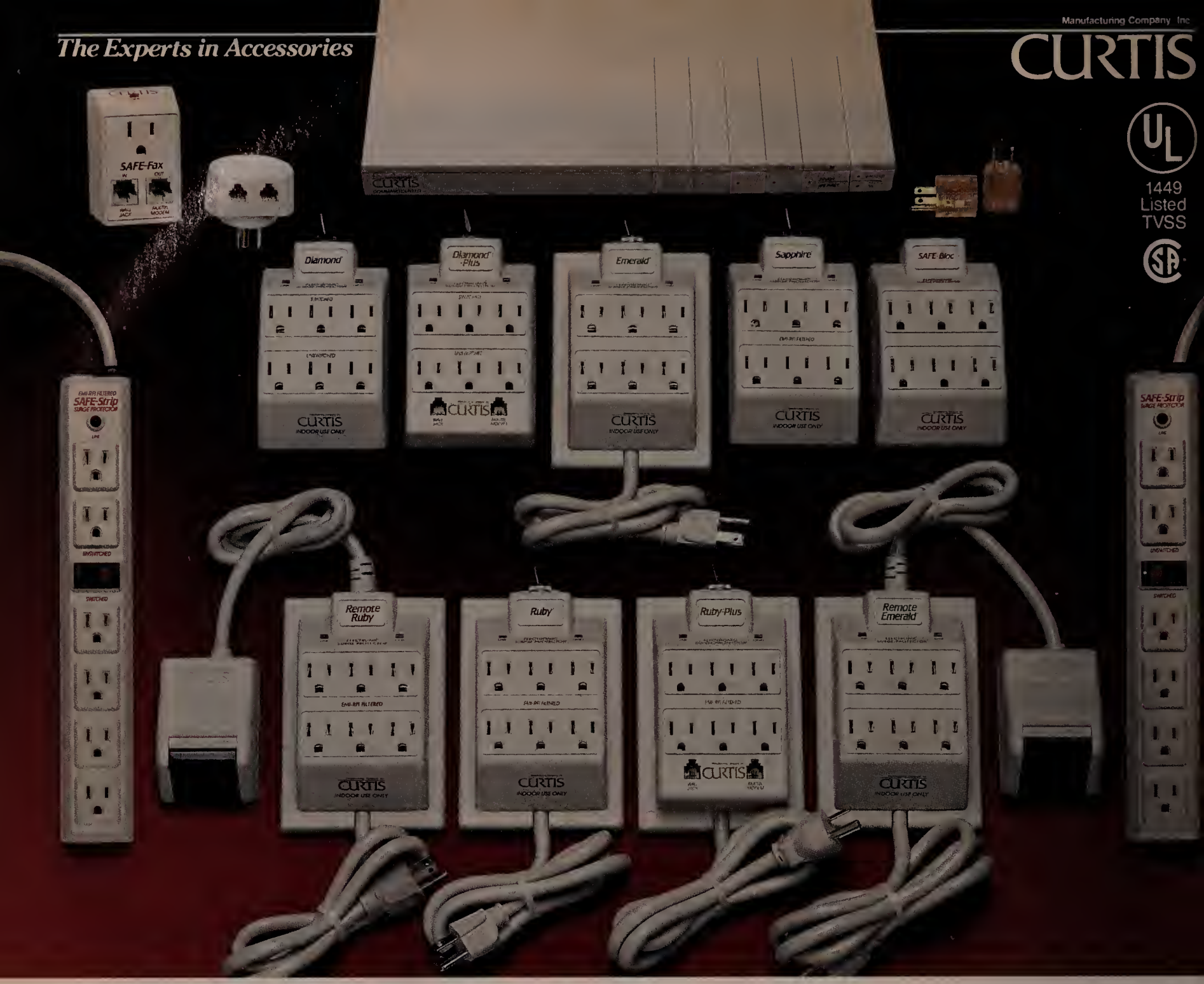

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PRODUCT OUTLOOK

Edited by RUSSELL GLITMAN

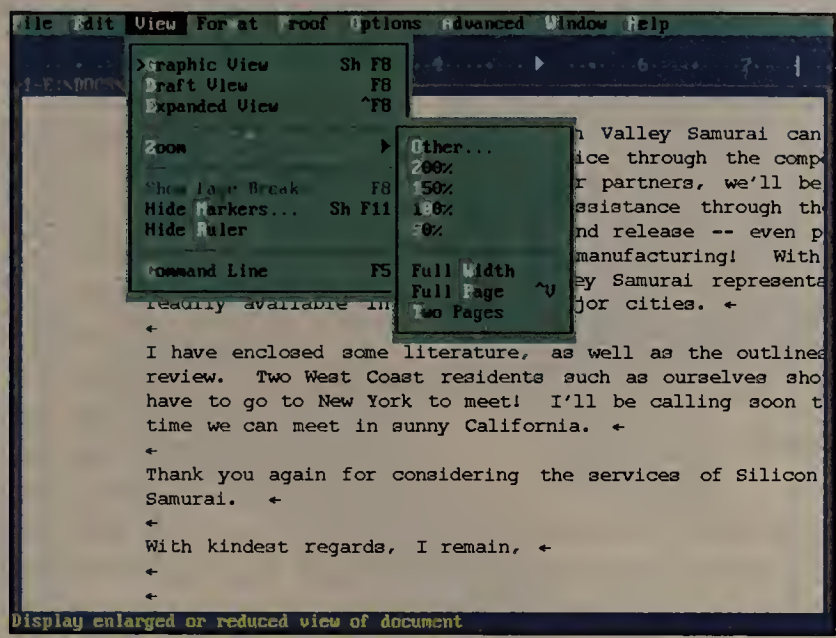
Signature

Sign Up for WYSIWYG Word Processing Without Windows

Signature, the word processing successor to XyQuest's *XyWrite* and IBM's *DisplayWrite*, preserves many features and keystrokes from its ancestors but adds such welcome capabilities as WYSIWYG fonts and a graphical interface.

Like *DisplayWrite 5*, *Microsoft Word 5.5*, and many other non-*Windows* word processors, *Signature* is a text-based program with graphical interface attributes like scroll bars, pop-up dialog boxes, pull-down menus, mouse support, and clipboard cut-and-paste editing. It simplifies learning and accelerates many tasks while maintaining overall performance (like *XyWrite*, *Signature* is acceptably speedy on an 8088-based laptop).

The $495 package moves a considerable step beyond its peers with its editable WYSIWYG graphics mode, which gives you Bitstream Speedo fonts that look the same when you print them as they do on your screen.



Signature adds WYSIWYG fonts and a graphical interface while retaining many XyWrite and IBM DisplayWrite keystrokes and features.

You can write and edit in this mode without giving up too much speed, and its graphics import and placement functions support frames and text wrap. Additionally, you can zoom in to scrutinize detail, and back out for whole page views. Another option is an expanded view (like *XyWrite*'s) that shows editable format codes.

Checking the Checklist

Signature meets the standard word processing checklist: style sheets, an outliner, simple page layout functions, undelete function, mail merge, text and program macros, a spelling checker, and a thesaurus.

Accelerator keystrokes and command line options can bypass the menus. *Signature* includes *XyWrite*'s handy split-screen feature for as many as nine windows, imports and exports files in formats of approximately three dozen word processors, and supports most printers.

For work group use, the package runs on major local area networks and supports redlining to track changes.

XyQuest teamed up with IBM to develop *Signature*, only to have IBM abandon the effort just short of launch when it dissolved its Desktop Software group last fall. Nonetheless, the effort attracted a flock of third-party add-ins such as grammar checkers and text searchers, which can be integrated into *Signature* menus—so don't let IBM's cold feet deter you.

Signature will meet the needs and expand the horizons of *XyWrite* and *DisplayWrite* users, and its blend of speed, WYSIWYG fonts, and sensible interface may draw other converts who are not ready to embrace *Windows*.

Signature requires 512K of RAM and a hard disk with 5.5MB of memory available. Upgrades are available for $119 from *DisplayWrite*, or $99 from *XyWrite*.

—*Peggy Watt*

IN BRIEF

Signature
Designed as an upgrade for both *DisplayWrite* and *XyWrite* users, this fast and capable DOS word processor offers true WYSIWYG fonts in an editable graphics mode.

Xyquest
44 Manning Dr.
Billerica, MA 01821
508/671-0888,
508/671-0858 (fax)
Reader service no. 637

INSIDE PRODUCT OUTLOOK

92 **386MAX, BlueMAX 6.0** Memory managers boast increased flexibility plus ease of use and installation.

96 **Backpack Tape Drive** Four-pound portable drive stores up to 250MB and doesn't require a valuable expansion slot.

98 **SL007 Notebook Computer** The 386 notebook's unique encryption chip keeps data secure.

102 **MicroPhone II for Windows 2.0** Communications package adds dialing directory, automatic scripting, and a new low price.

104 **14.4EX External Modem** Intel's versatile external modem supports speeds up to 14,400 baud.

106 **Writer's Toolkit, American Heritage Dictionary, Webster's Dictionary, Word for Word/ Professional 5.0** Four hot new utilities for on-line scribes.

109 **Master 486SX-25, Legacy 486SX-25** Arche's entries in the 486SX sweepstakes feature Intel's new 25-MHz chip.

111 **Diconix 180si** Kodak's portable printer: low price, less weight, with more speed and functions.

111 **Epson ActionLaser II** An upgradable laser printer at a dot matrix price.

LitePro, LitePro LS, Mport 433/Mpression

The Color LCD Projection Connection

Weighing just under 20 pounds, the LitePro LS includes a 216mm lens, 400-watt light source, and a 3½-inch floppy drive.

LCD projection systems are a relatively simple way to present color or gray-scale computer-created images. You just hook your PC to a panel and start the show—no overhead transparencies, no expensive slides, no bulky monitors.

Unfortunately, that still leaves an overhead projector to cope with. Not anymore. In Focus Systems' new LitePro LCD projector ($6995) combines a passive-matrix, color LCD display and an overhead projector in one unit. This luggable, 19-pound, rectangular box features a 216mm lens and a 400-watt light source and acts very much like a monitor, accepting images from your graphics card.

The pricier LitePro LS ($8495) comes with In Focus Systems' LiteShow II software/hardware built in. Slightly heavier than the LitePro, the LS includes a 3½-inch drive and software for converting graphics files into In Focus Systems' proprietary TIFF-like format. Both the LitePro and LitePro LS run on AC power only, and support over 4900 colors at 640 by 480 resolution.

Taking another approach, Micronics Computers offers an active-matrix LCD projection package consisting of a 33-MHz, 486-based portable computer—the 15-pound Mport 433 ($5995)—and a color or monochrome LCD projection panel, the Mpression. The Micronics system requires an overhead projector for LCD presentations, but since the $6995 Mpression color LCD panel is active matrix, its image appears in more vivid color than passive-matrix ones. The Mpression color LCD has a standard VGA resolution of 640 by 480 and can display 256 colors from a palette of 187,000. The Mpression monochrome panel is $995.

The Mport 433 provides the graphics controllers and power for the Mpression LCD panels, which are connected via a proprietary LCD port. The LCD connection feeds the computer's digital signal directly into the LCD panel. You can hook up competing LCD panels to the computer's VGA port, but Micronics panels work only with Micronics computers. —*Jeff Bertolucci*

IN BRIEF

LitePro, LitePro LS, Mport 433/Mpression Panels
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The Mport/Mpression combo gives you a 486 portable and an active-matrix LCD panel for vivid projections.
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386MAX, BlueMAX 6.0

Improved Memory Managers Aren't Just for the 386

Ease of use and installation, improved memory management, and increased flexibility characterize the latest versions of *386MAX* and *BlueMAX* (the PS/2 version) from Qualitas.

One of the most welcome enhancements is the incorporation of Qualitas' Move'em utility into *386MAX*. This allows resident programs to load high on any machine with EMS 4.0 memory, and on 286 PCs with the Chips and Technologies LeAP or NeAT chip sets.

386MAX and *BlueMAX 6.0* also support DPMI, the DOS Protected Mode Interface. Applications that use a DOS extender work better with DPMI, which takes full advantage of all the memory in your 386 or 486 computer.

386MAX and *BlueMAX* now allow expanded and extended memory to be allocated on demand from a common pool. The maximize utility, which optimizes use of high memory, is also more flexible; you can choose an automatic installation or a manual configuration process that allows tweaking.

The latest versions are especially good at rearranging the contents of high memory to provide the largest possible contiguous space for drivers and TSRs. A feature called VGAswap can move VGA or EGA BIOS ROMs downward in memory, leaving more room for the EMS page frame. On Compaq machines, *386MAX* can free 32K of additional high memory for TSRs and drivers.

All in all the new versions are a big step forward in ease of use, flexibility, and memory management. *386MAX* retails for $99.95, *BlueMAX* for $124.95, and upgrades are $29.95. —*Brett Glass*

IN BRIEF

386MAX, BlueMAX
An easy way to get more memory is the promise of *386MAX* and its PS/2 cousin, *BlueMAX 6.0*.
Qualitas, Inc.
7101 Wisconsin Ave.
#1386
Bethesda, MD 20814
800/733-1377,
301/907-6700
Reader service no. 644

Do You Make These Six Common Mistakes On Your Taxes?

Six common mistakes can cause you big headaches on your taxes. An oversight here, an omission there. From unnecessary tax payments to full blown IRS audits -- you can end up paying too much ... or worse.

But now, using TurboTax and your personal computer, you can avoid these simple but costly mistakes:

1 The Arithmetic Error
Today, even the simplest forms contain complex calculations. And with all the late-night scrambling, an innocent mistake could cost you plenty.

2 The Transcription Error
With all those numbers being juggled from schedule to schedule, it's no wonder the figures are so often transcribed incorrectly or entered on the wrong line.

3 The Omitted Form
Even "ordinary" returns require anywhere from six to a dozen forms to complete. It's easy to miss one ... or end up rushing all over town to find the one you need.

4 The Misinterpreted Instruction
At best, IRS instructions can be tough to understand. At worst they can be mind-boggling. What you need are clear directions in plain English.

5 The Overlooked Deduction
You'd have to be a professional tax preparer to know all the deductions you're entitled to. If you miss just one, it could cost you hundreds of dollars.

6 The Exceeded Guideline
The fastest way to trigger an IRS audit is to exceed the "normal" range on one of your deductions. You need to know what the IRS looks for on a line-by-line basis.

When you do your taxes with TurboTax, mistakes like these are virtually impossible. And filing your taxes couldn't be easier.

America's #1 Tax Software

TurboTax is America's #1 best-selling tax software -- over six million returns were filed with TurboTax last year! With TurboTax on your PC (or MacInTax on your Macintosh), you can completely and accurately prepare your income taxes in just a few hours.

Here's how easy it is!

A. *Gather your records and receipts.*
B. *Enter your data into TurboTax just once.*
C. *Print out, sign and drop in the mail.*

TurboTax does the rest. Even if your records and receipts aren't in any particular order, TurboTax guides you through step-by-step questions and shows how to enter every item. And like a good tax advisor, TurboTax helps you identify every deduction you can claim.

Then TurboTax makes all the calculations, checks for accuracy and consistency, and transfers every number to the proper lines on the proper forms. And, TurboTax prints every form you need in IRS-approved format right on your own printer -- ready to sign and mail (or file electronically, if you prefer, for a faster refund).

PC MAGAZINE EDITORS' CHOICE
FEBRUARY 26, 1991
CHIPSOFT TURBOTAX

PC Magazine says TurboTax "makes doing your taxes almost fun." Try it for yourself. Free. We know that if you try it, you'll never go back to doing your taxes the old-fashioned way. So we'll send you TurboTax on an unconditional free trial basis: *If you don't like it, you don't pay for it!*

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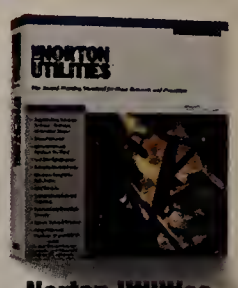

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ChipSoft

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DayBook+, Make Your Point, Instant Database

PocketBooks: Windows Programs With Bargain Prices

Asymetrix's *PocketBooks* is a new software series that fits your time and budget. These three simple, inexpensive, no frills *Windows* applications include an entry-level data base program, *Instant Database*, a presentation package, *Make Your Point*, and an update to the company's calendar program, *DayBook+*.

DayBook+ ($49.95) is a quick and easy program for managing your schedule. An upgrade of *DayBook 1.5*, it includes an alarm to notify you of upcoming appointments, a weekly report that flags schedule conflicts, and an auto-dialer.

Instant Database ($59.95) is for the small business or home user who wants to create customer lists, mailing labels, and business forms. The program features two modes—one for creating a form, the other for inputting, searching, and sorting data—and comes with predesigned forms.

Need to develop business presentations fast? *Make Your Point* ($59.95) comes with a collection of style templates, clip art, and color and pattern designs for creating overhead presentations or computer-based demos. Select a template, type in your data, and you're done. The product targets the business user who wants to develop simple presentations and can't be bothered with a complex, full-featured graphics program.

PocketBooks won't overwhelm you with power, but if you need to use these applications only occasionally, or if you don't have time to learn a complex software package, you may find them useful.

—*Jeff Bertolucci*

IN BRIEF

PocketBooks
WINDOWS Three simple, inexpensive applications give you entry-level data base, scheduling, and presentation tools.
Asymetrix
110 110th Ave. NE #700
Bellevue, WA 98004
206/637-1500,
206/454-3071 (fax)
Reader service no. 642

Asymetrix's DayBook+ lets you create daily, weekly, and monthly to-do lists that keep track of assignments and meetings.

TEAC Combination FD-505 Half-Height, 5¼-Inch Floppy Drive

Two-in-One Floppy Replaces Single 5¼-Inch Drives

The TEAC Combination FD-505 drive saves space by combining 3½- and 5¼-inch floppy drives into a single half-height, 5¼-inch package.

If you have PS/2s around the office or if you're carrying a notebook out on the road, a 3½-inch 1.44MB drive for your desktop would sure make life easier.

Unfortunately, plenty of desktop PCs still have only one floppy drive—a 1.2MB 5¼ incher. If that describes your machine, and you want to keep your desk free of expensive external drives, TEAC America's new Combination FD-505 half-height, 5¼-inch floppy drive presents a smooth solution.

This innovative drive pairs both standard floppy drives—5¼ inch and 3½ inch—in one unit that slides right into your half-height 5¼-inch bay. Best of all, the two drives together have a single power connector and one data connector.

TEAC pulls off this slick trick by combining two new drives, which it sells as separate components only to systems vendors. Its new 3½-inch floppy drive is just a half-inch high, which makes it the slimmest drive around. Place this featherweight on top of TEAC's trim little third-height, 5¼ incher, fit it with a single bezel, and you've got two drives in one. And the 5¼-inch drive, unlike other drives of comparable height, works just like a 3½: When you insert the disk it clicks into ready mode; when you press the button, the disk ejects.

At a list price of $249, the TEAC Combination FD-505 does cost slightly more than two separate floppy drives. But if you're short on storage bays, this innovative dual drive is your best choice.

—*Rex Farrance*

IN BRIEF

Combination FD-505
TEAC's trailblazing dual drive handles 5¼- and 3½-inch floppies in one half-height bay with one power connector and one data connector.
TEAC America Inc.
Data Storage Products
7733 Telegraph Rd.
Montebello, CA 90640
213/726-0303,
213/727-7672 (fax)
Reader service no. 660

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TEXAS INSTRUMENTS

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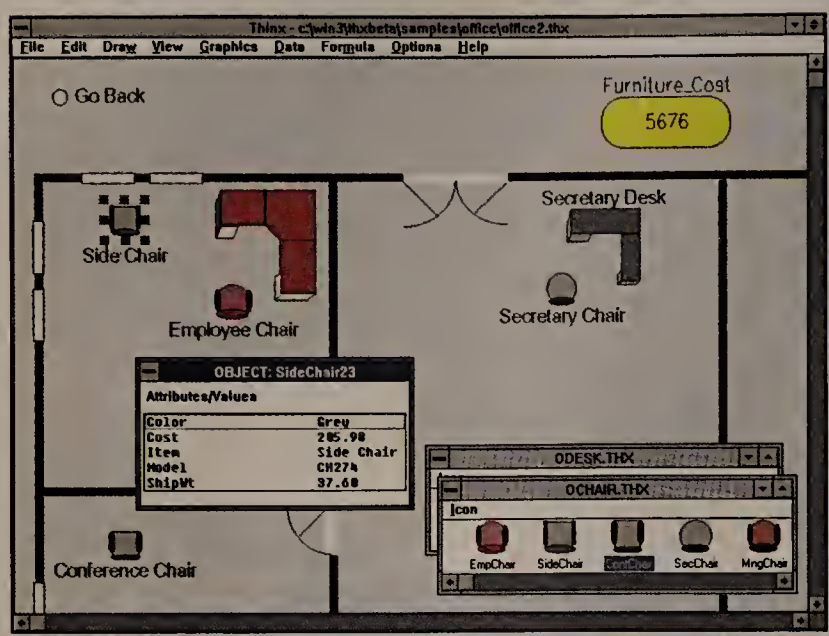
Circle 296 on reader service card

Thinx 2.0

A Graphical Way to Manage Data



To create visually oriented projects, Thinx 2.0 has a spreadsheet-style data editor, file linking, enhanced formula capability, and DDE support.

Thinx is a unique *Windows* data manager that blends elements of a drawing program, data base manager, and spreadsheet utility to provide executives with a visual way to organize resources and present data. It's especially suitable for in-house developers who need to set up easy-to-use, graphical applications for managers or for an entire work group.

You can use *Thinx* to develop such things as "smart" organizational charts that include information on work in progress, or to plan and implement projects that are primarily visual in nature, such as managing facilities, creating an office layout, or designing a manufacturing floor.

Thinx is based around objects, which are presented as graphic symbols of data. Each object represents an individual record, and has definable fields called attributes.

An object can represent anything you might keep track of in a data base table or spreadsheet, such as inventory, raw materials, employees, and so on. Attributes define the objects, classifying them by such aspects as weight, price, salary, or title.

Double-clicking on an object displays its underlying data. To determine whether a project will be completed on time or within budget, *Thinx* enables you to create formulas. Then it's easy to experiment with alternatives and see the resulting costs calculated immediately. The formula capability is comprehensive, and *Thinx* includes plenty of built-in spreadsheetlike functions. Formulas can apply to all objects or to specific ones.

Version 2.0 adds a convenient spreadsheet-style data editor, file linking, enhanced formula capability, DDE support, and plenty of file import options including DBF, WK1, XLS, DRW, and CGM files.

At $495 ($49 for upgrades), *Thinx* holds a unique position among *Windows* applications, but it's not right for everyone. Despite the generally well-designed interface, it takes a considerable amount of time to get up to speed, and designing a new application can be very tedious.

Thinx's analytical and reports capabilities fall short of spreadsheets and traditional data base programs. Nonetheless, for applications that aren't number intensive and are primarily visual in nature, *Thinx* is a great tool that helps you see the data.

—*John Walkenbach*

IN BRIEF

Thinx 2.0

WINDOWS This unique data manager provides a visual way to organize and present data.

Bell Atlantic Network Services, Inc.
13100 Columbia Pike
D37
Silver Spring, MD 20904
800/688-4469
Reader service no. 661

Backpack Tape Drive

Any Parallel Port in a Storm: This Tape Drive Travels

With Micro Solutions' portable 4-pound Backpack tape drive, you can back up almost any desktop or laptop quickly and efficiently. You don't even use a precious expansion slot. Simply plug the Backpack into any free parallel port, slap in a tape, and run a simple menu-driven backup program.

The Backpack won't break any speed records—it can back up 2MB a minute, about average for tape drives. And if you look only at the price tag, it's not a steal. The 40MB and 80MB drives cost $569 and $669, respectively. Comparable internal tape drives run about $150 less, but you can use them only with one PC.

Both drives use QIC standard DC2000 tapes, and the 80MB unit can read tapes formatted in the 40MB drive. Using Backpack's compression scheme, the 40MB drive can store up to 122MB, while the 80MB unit tops out at 250MB.

Both drives work on Novell and 3Com networks as well; just plug them into the server's parallel port.

As you'd expect, Micro Solutions' backup program can do full, incremental, or selective backups and restores. There's a simple macro language to schedule unattended backups, and tapes can be password protected.

Backpack does have its drawbacks. For starters, you can't attach Backpacks to each other. And you can't use other backup programs with Backpack. Another negative is a short, confusing manual that lacks an index.

But these are quibbles. The Backpack tape drive (and the entire Backpack line) fills a great need for companies on a budget, laptop users, and anyone who needs storage on the move. —*Robert Luhn*

IN BRIEF

Backpack Tape Drive
Say good-bye to floppy backups! Plug this portable tape drive into a parallel port, and back up your PC for only $569 (40MB) or $669 (80MB).

Micro Solutions Computer Products
132 W. Lincoln Hwy.
DeKalb, IL 60115
815/756-3411,
815/756-2928 (fax)
Reader service no. 643

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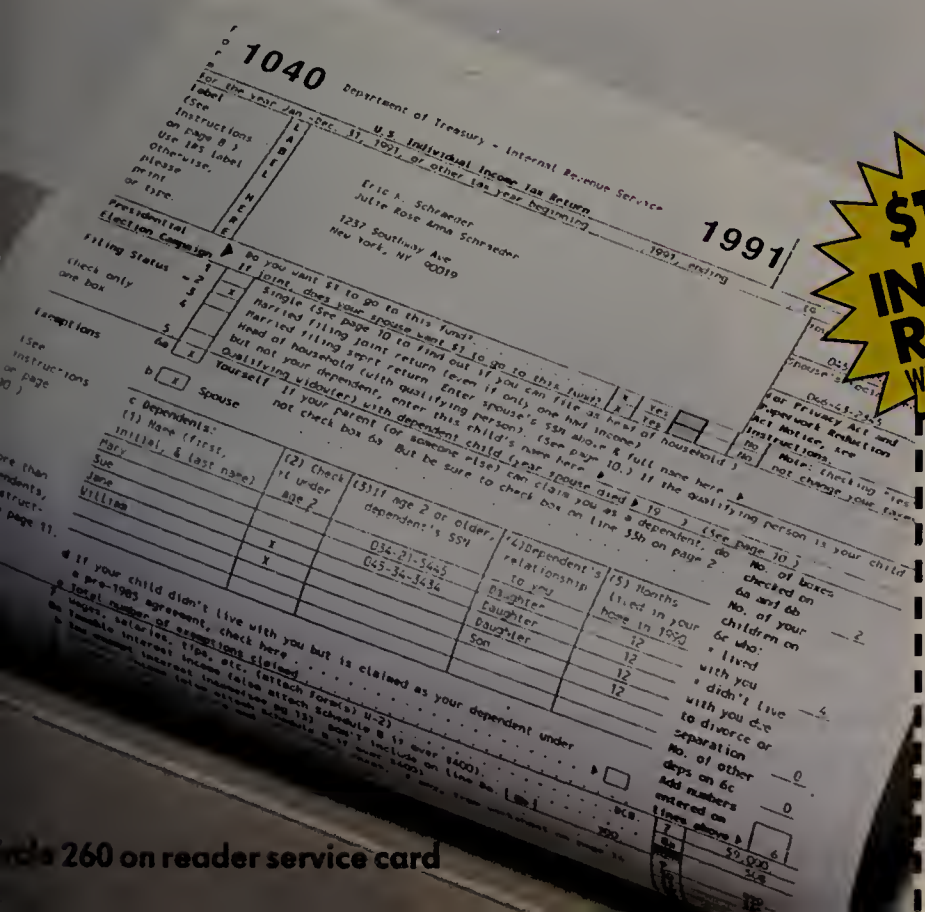

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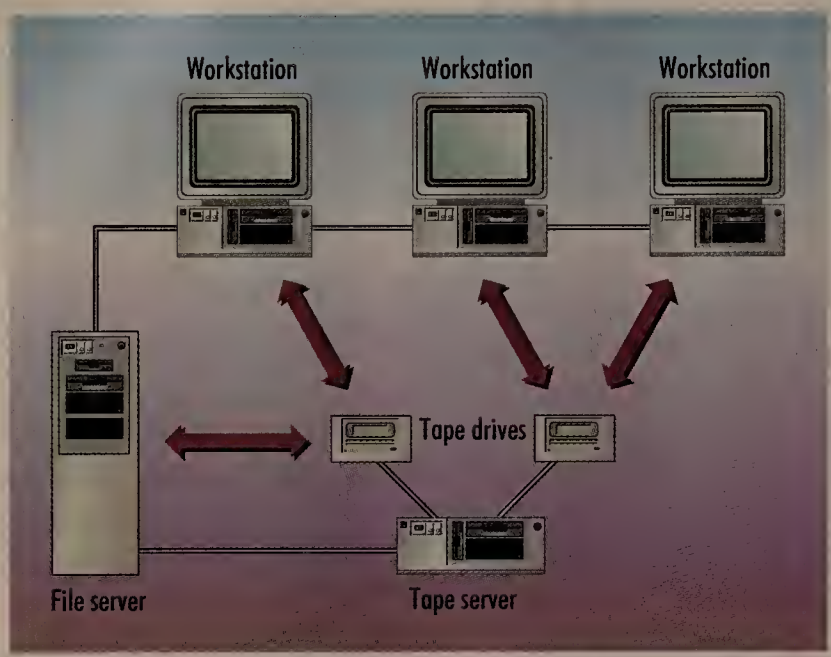
Circle 260 on reader service card

Maynard LANStream Client/Server Backup System

LAN-Based Work-Group Backup That Leaves You in Control

You know you're courting disaster when the whole office isn't backed up. But how do you get everybody on the program? If you're living on the LAN, Maynard's new LANStream Client/Server Backup System for Novell LANs gives you the flexibility and control of a personal tape drive while it wraps a systemwide security blanket around your LAN.



LAN administrators can execute central backups of LAN drives or workstations, or individuals can do their own backups.

With LANStream, your LAN administrator can back up LAN servers, select only crucial workstations, or do the entire work group. You can sit back while your administrator backs up your PC, or take charge and back up what and when you want. The LANStream system gives you the control of a personal tape drive. Select a file or full backup and send your request to the tape server just as you'd send a job to the printer. While the backup or restore is under way, you can continue working with LANStream running in the background.

The LANStream system combines *LANStream 1.0* software and utilities, a tape drive, SCSI controller, a cable to join the drive to your dedicated tape server, five tapes, and a special LANStream tech support account. The system works with mixed NetWare 286/NetWare 386 LANs and even interconnected networks. The basic software license covers the tape server and five workstations. Prices for the startup system run from $7495 to $10,995, depending on the drive.

—*Rex Farrance*

IN BRIEF

LANStream Client/Server Backup System
The LANStream backup system for NetWare is a unique dedicated tape server design that gives you choices you never had with conventional LAN backups.
Maynard Electronics Inc.
36 Skyline Dr.
Lake Mary, FL 32746
800/821-8782,
407/263-3500 (fax)
Reader service no. 654

SL007 Notebook Computer

A Notebook James Bond Could Love

Ever agonized over what might happen if your notebook fell into the wrong hands? Here's a 386SL notebook with a unique approach to security: a socket for an optional $995 coprocessor chip that encrypts every file written to disk (hard and floppy) and all data transmitted via the ports. You can't turn the encryption off. Even if you lose the notebook—or someone steals it—no one can access your data without your password.

Based on the 20-MHz low-power version of Intel's 386 chip, the SL007 is designed for government, military, and business users who need a portable computer with dependable security. Unfortunately, the notebook's keyboard includes a non-standard cursor-key layout, emulated page keys, and only 10 function keys. The SL007 weighs 7.6 pounds and comes with a 60MB hard drive, 4MB of RAM expandable to 8MB, 32K memory cache, 10-inch backlit VGA screen, and 4 hours of battery life with recharge time estimated at 40 minutes, according to the company.

The SL007 comes with a built-in 9600-baud fax/2400-baud data modem, *WinFax* send/receive software, MS-DOS 5.0, *Windows 3.0*, and a pointing device, and it costs $4995 without the encryption coprocessor. —*Jeff Bertolucci*

IN BRIEF

SL007 Notebook Computer
An optional coprocessor encrypts all data on the SL007's hard disk.
BCC
174 Component Dr.
San Jose, CA 95131
800/827-4222,
408/944-9000
Reader service no. 646

An optional coprocessor encrypts all your files inside the SL007 20-MHz 386SL notebook, which features 4MB of RAM, a 60MB hard drive, and a 10-inch backlit VGA screen.

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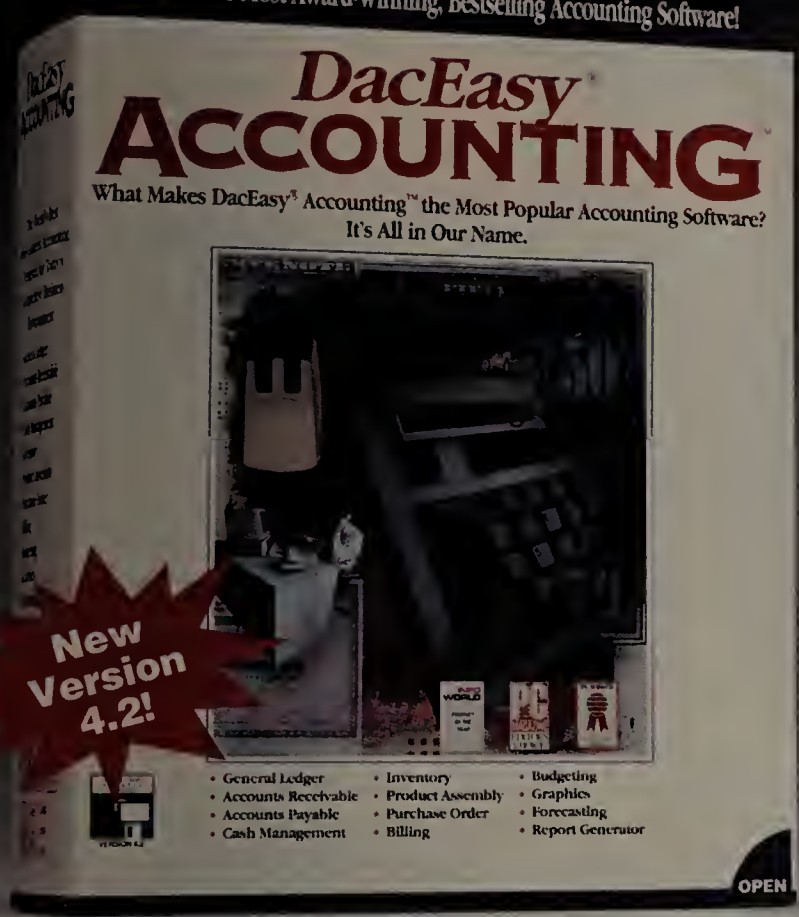

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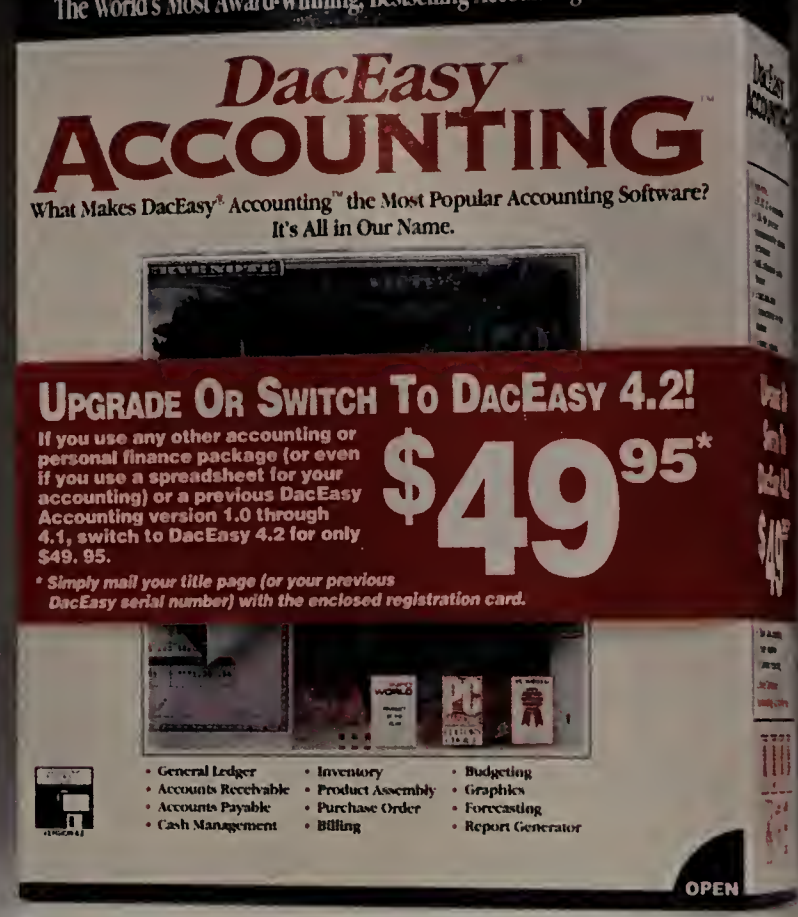

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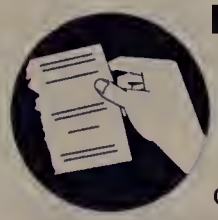

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Minimum Hardware Requirements: 640K, IBM or compatibles. Hard disk. DOS 3.1 or later. Mouse optional. DacEasy, DacEasy Accounting, Payroll and BonusPack are trademarks of DacEasy, Inc. Copyright ©1991, DacEasy, Inc. All rights reserved.

Circle 94 on reader service card

TakeNote

Windows Filer With Data Management

ButtonWare's *TakeNote* is useful for organizing all sorts of things—from phone numbers to office equipment—but it's no easier to define than any personal information manager.

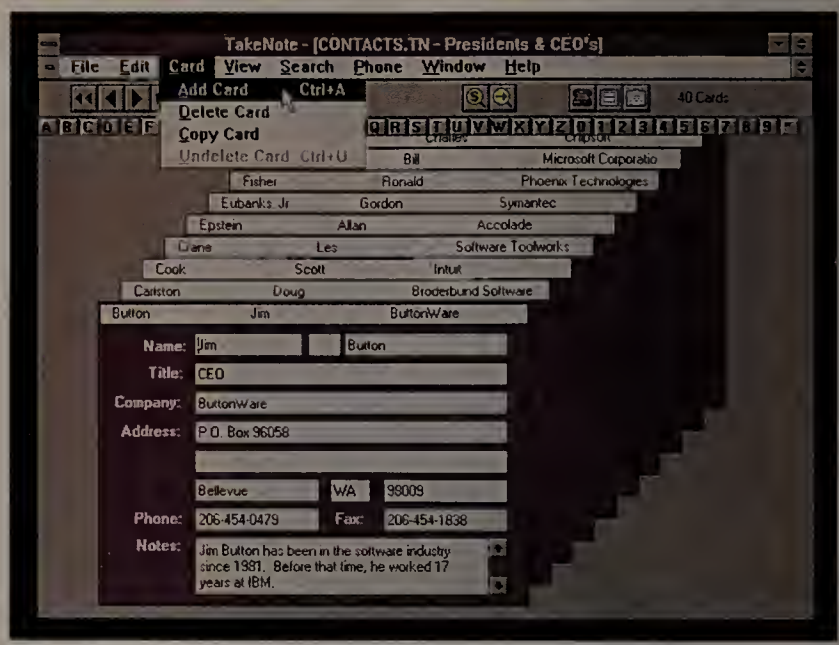
TakeNote is a cross between a personal information manager such as *PackRat* and the *Cardfile* accessory delivered with *Windows 3.0*. Like *Cardfile*, its primary use is to set up decks of phone numbers and addresses. Although *TakeNote* offers superior query, view, and report capabilities and helps you manage personal information better, it lacks the scheduling and accessories characteristic of a true PIM.

TakeNote is much more graphical than *Cardfile*, and to good effect. You have the usual scroll bars and drop-downs from a menu bar, and beneath that is a Button Bar with icons that allow quick access to the most commonly used commands—forward and backward string and page searches, adding or deleting cards, dialing the phone, and printing labels or cards.

In addition to the classic address book or Rolodex formats, *TakeNote* gives you templates that make it easy to set up an office inventory or library of software, reports, or music collections. You can then query and report on them, and view them as a table. It also imports *dBASE*, *PC-File*, *WordPerfect*, and ASCII files.

Unfortunately, in the interest of simplicity, *TakeNote*'s data fields are rather rigid. There is room for only two addresses per person and a work, home, cellular, and fax number. You can keep additional addresses and numbers in a card's 8K notes section, but that information isn't available to search.

All in all, *TakeNote* makes small demands on your hard disk, memory, and pocketbook. It comes on just one disk and costs only $69.95. You can't put your company's sales data base on it, but it's a quick way to handle phone lists and labels. —*Mike Hogan*



A cross between a personal information manager and the Windows Cardfile, TakeNote tracks everything from phone numbers to office inventory.

IN BRIEF

TakeNote

WINDOWS With ready-made templates for managing all kinds of data, this personal filer is a big step ahead of the Windows Cardfile.

ButtonWare Inc.
P.O. Box 96058
Bellevue, WA
98009-9818
800/528-8866,
206/454-0479
Reader service no. 659

MakeUp for Windows 3.0/3.1, TextAppeal for Windows

Bringing Character to Characters

Let's say you want to create a logo or spice up a newsletter or presentation by adding your own text-based graphics. You could struggle through a complicated presentation-graphics program—assuming you even have one—or take the easy route and pick up Bitstream's *MakeUp for Windows 3.0/3.1* or Power Up's *TextAppeal for Windows*.

Both *MakeUp* and *TextAppeal* (sold separately or bundled with *Express Publisher for Windows*; see review elsewhere in this section) are designed to make special text effects a snap.

MakeUp is the more sophisticated of the two. You can skew, rotate, curve, duplicate, scale, shadow, and wrap text around nearly any shape you can imagine. You can create your own characters and customize your image with multiple fill patterns and more than 16 million colors.

Though *MakeUp* is not a draw program, it includes a healthy complement of drawing tools as well as hundreds of clip-art files. *MakeUp* imports and exports all the major graphic formats, and it supports Object Linking and Embedding (OLE) in both *Windows 3.0* and *3.1*. Double-clicking on a *MakeUp* image in, say, a word processor document loads *MakeUp* and that image, open and ready for you to work on it.

MakeUp, which lists for $149, supports leading type standards, including TrueType, and ships with five Bitstream fonts.

TextAppeal takes a similar approach and matches most of *MakeUp*'s text and drawing capabilities, but it doesn't support OLE and its color capabilities are not as extensive. If you need some design guidance, it provides 40 Custom Tools—templates with text and object information, color, and style attributes—that you can apply to your text or modify as needed. As part of its $129.95 price, *TextAppeal* throws in *Adobe Type Manager* plus 13 additional fonts.

—*Steve Fox*

IN BRIEF

Bitstream MakeUp for Windows 3.0/3.1

WINDOWS A versatile type-manipulation package from an old hand in the fonts business.

Bitstream Inc.
215 First St.
Cambridge, MA 02142
800/522-3668,
617/497-6222
Reader service no. 652

TextAppeal for Windows

WINDOWS Special effects for text—plus Adobe Type Manager—for $129.

Power Up Software Corp.
2929 Campus Dr.
San Mateo, CA 94403
800/851-2917,
415/345-5900
Reader service no. 653

Announcing Northgate® OmniLAN™ Systems

Revolutionary Turn-Key LAN Solutions With "Connect And Compute" Convenience

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Once your OmniLAN system is up and running, Northgate keeps it operating at peak performance with a comprehensive package of factory-direct service and support. Services include technical support 24 hours a day, seven days a week. Our skilled technicians are backed by Certified NetWare® Engineers, and the call is on us. You also receive free non-diagnostic on-site hardware service from NCR® for one year.

In addition, Northgate backs every system with a one year parts and labor warranty and overnight shipment of replacement parts at our expense. Customized service and support packages — including extended warranty coverage — are also available.

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Northgate offers a variety of OmniLAN packages, which gives us the flexibility of tailoring a solution to meet your applications. Here's how to select the OmniLAN system that's right for you.

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800-345-0188

Notice to the Hearing Impaired: Northgate has TDD capability. Dial 800-535-0602.

7075 Flying Cloud Drive, Eden Prairie, MN 55344

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CODE N1802

Circle 193 on reader service card

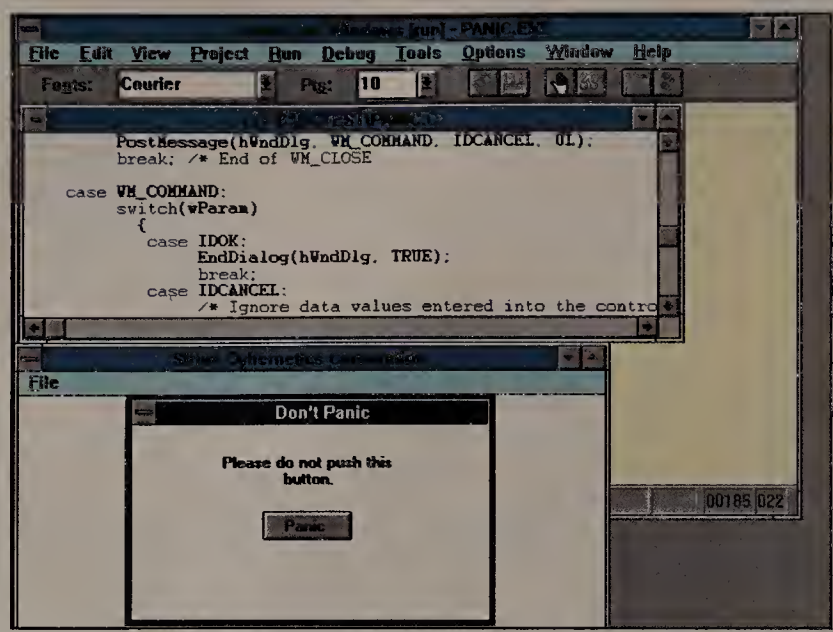
Microsoft QuickC for Windows

Graphical Programming in Windows for Windows Writers

Microsoft's long-awaited *QuickC for Windows* features integrated resource editing and debugging tools, along with graphical tools that make it easy to design a *Windows* interface without having to return to the DOS prompt. The $199 application is Microsoft's first *Windows* development tool for C.

To build an application, you start with the program's image editor, which helps you create bit maps for icons and cursors, then turn to the dialog editor to build dialog boxes with buttons, check boxes, and other controls. Finally, enter the interface generator called QuickCASE:W, which takes the dialogs, icons, and bit maps and binds them into a complete user interface.

As it does this, QuickCASE:W generates a source code "skeleton" for your application in which the interface's buttons, scroll bars, and other doodads are active. Then you must search through the generated program to find the spots where your *Windows* code will make the interface controls do their jobs.



QuickC for Windows, Microsoft's first Windows development tool for C, features an editor that color-codes syntax to reduce errors.

Writing *Windows* code is notoriously tricky but Microsoft makes it a bit easier with *QuickC*'s editor, which color-codes keywords and comments so they stand out. This helps both novices and experts nab bugs, but to get a complete syntax check you must run the compiler. The compiler produces *Windows* EXE files, *Windows* DLL, and DOS EXE files. However, the integrated debugger doesn't work with DOS EXE files.

Another plus: Virtually all the documentation is on line, so you'll rarely need to refer to the four printed manuals. Upgrades from *Microsoft C* or *QuickC 2.x* are $89.95. With *QuickC for Windows* Microsoft finally offers a development product for *Windows* users. —*Brett Glass*

IN BRIEF

QuickC for Windows

WINDOWS QuickC for Windows makes it easier to develop Windows applications, but using it still requires an in-depth understanding of Windows programming.

Microsoft Corp.
1 Microsoft Way
Redmond, WA 98052
800/426-9400,
206/882-8080
Reader service no. 657

MicroPhone II for Windows 2.0

Dial M for Windows or Macintosh

The update of *MicroPhone II for Windows* successfully solves most of the problems in the first *Windows* version of the popular Macintosh communications program. Moreover, its price has been slashed to $195, and it has many enhancements that will satisfy mainstream communications users.

Version 2.0 of *MicroPhone II for Windows* builds on the icon-based interface that popularized the first version, by adding a simple dialing directory. The directory lets you select several numbers, and the program dials each sequentially until it connects. Although dialing directories have been an essential part of DOS communications programs for years, few *Windows* programs have them.

Another major and long-awaited enhancement is the addition of an excellent and fast communications protocol, ZMODEM. However, *MicroPhone II* still lacks the Kermit protocol.

Keeping up with the power of *Windows*, developer Software Ventures Corporation has added Dynamic Data Exchange capability to *MicroPhone II*. With DDE, you can completely automate data transfer between *MicroPhone II* and other *Windows* applications. You can also use DDE with *MicroPhone II*'s script language, letting you link applications. A graphical scripts editor that brings point-and-click script creation to *MicroPhone II* is also included. Scripts written for the *Windows* version are interchangeable with those for the Macintosh version of *MicroPhone II*.

Another handy feature is the automatic macro recorder. It watches your steps and can play them back later. You can import these macros into the scripts editor for further refinement.

Users who complained about *MicroPhone II*'s slow screen handling will also be impressed by version 2.0, which scrolls data acceptably.

If you're moving to *MicroPhone II for Windows* from full-featured DOS communications programs, you'll appreciate the icon-based interface and powerful but easy-to-use scripting tools. And the addition of DDE provides tight data links with your *Windows* applications.

—*John V. Hedtke*

IN BRIEF

MicroPhone II for Windows 2.0

WINDOWS A lower price, nifty dialing directory, and automatic scripting make version 2.0 a better communicator.

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Berkeley, CA 94705
510/644-3232
Reader service no. 667

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Express Publisher for Windows

Express Publisher Powers Up to Windows and Adds Features

Like its DOS counterpart, Power Up's new *Express Publisher for Windows* is designed for the business user who wants to create brochures, fliers, signs, and newsletters without having to learn complex, professional-quality desktop publishing packages such as *PageMaker* or *QuarkXpress*.

Priced at $249.95, *Express Publisher for Windows* is packed with features not found in the DOS version. Take text handling: You can rotate text "live" in a document instead of having to enter a separate text-rotation mode. The *Windows* version also includes an enhanced style editor that lets you retain the format of text imported from DOS and *Windows* programs such as *WordPerfect, Word for Windows,* and *1-2-3*.

The program includes thumbnail previews for viewing up to 32 pages at once, a new drag-and-drop feature that lets you move text and graphics from one page to another, 20 predesigned templates, and 100 clip-art images.

Express Publisher for Windows also comes with 13 PostScript outline fonts, a spelling checker, and a built-in version of Power Up's new *TextAppeal* program for creating text-based graphics (see review elsewhere in this section).

You can upgrade from the DOS-based *Express Publisher* for $69.95. If you use another desktop publishing package, you can switch to *EP for Windows* for $99.95. Although no match for *PageMaker, Express Publisher for Windows* is a decent entry-level program for desktop publishers who need functionality without hassle.

—*Jeff Bertolucci*

IN BRIEF

Express Publisher for Windows
WINDOWS Improved text handling and multiple-page preview are included in this easy-to-use Windows desktop publishing program.
Power Up Software Corp.
2929 Campus Dr.
San Mateo, CA 94403
800/851-2917,
415/345-5900
Reader service no. 656

PKZip 2.0

More Zip for You

No matter how much you compress a file, it never seems small enough. To squeeze out just a bit more memory, PKware has brought out *PKZip 2.0,* with a patented compression algorithm that reduces files 5 to 10 percent more than its predecessor did.

No price or memory hog itself, version 2.0 sells for $47 and includes expanded memory support so it requires as little as 85K of conventional memory, down from 95K in the previous version. If your computer doesn't have expanded memory, *PKZip 2.0* requires a hefty 183K of conventional memory because the new compression algorithm requires more RAM.

Another new feature: *PKZip 2.0* can create compressed files that span more than one disk. In the past, if you couldn't compress a large file onto a single floppy you got a 'Disk Full' message. Now when *PKZip* fills a floppy during the transfer process, it prompts you for a new disk. Whoops, you don't have a formatted floppy? No problem, *PKZip* formats your disk on the fly and then completes the compression job.

Unfortunately, *PKZip 2.0* retains the same unfriendly, DOS command-line interface of the earlier versions. And don't expect to see a *Windows* version anytime soon.

PKZip 2.0 runs under any version of DOS from 2.0 to 5.0, and is compatible with DR DOS 6.0. If you own *PKZip 1.1,* the upgrade is free. If you own an earlier version, it costs $8. —*Jeff Bertolucci*

IN BRIEF

PKZip 2.0
The latest version of this popular file compression utility offers improved compression, uses less conventional memory, and can create ZIP files that span disks.
PKware, Inc.
9025 N. Deerwood Dr.
Brown Deer, WI 53223
414/354-8699,
414/354-8559 (fax)
Reader service no. 655

14.4EX External Modem

Intel's Top of the Line: Faster Is Better

Fast, small, inexpensive, and feature packed, Intel's 14.4EX external modem gives you some of the best reasons yet to retire that old 2400-baud box.

Buying a modem usually requires crossing a thicket of bewildering acronyms that denote a confusing set of standards. Does the modem support the CCITT V.32 standard for speeds up to 9600 baud? V.32bis for speeds up to 14,400 baud? V.42 error control as well as V.42bis data compression? What about the MNP-1 through MNP-5 error correction data compression protocol?

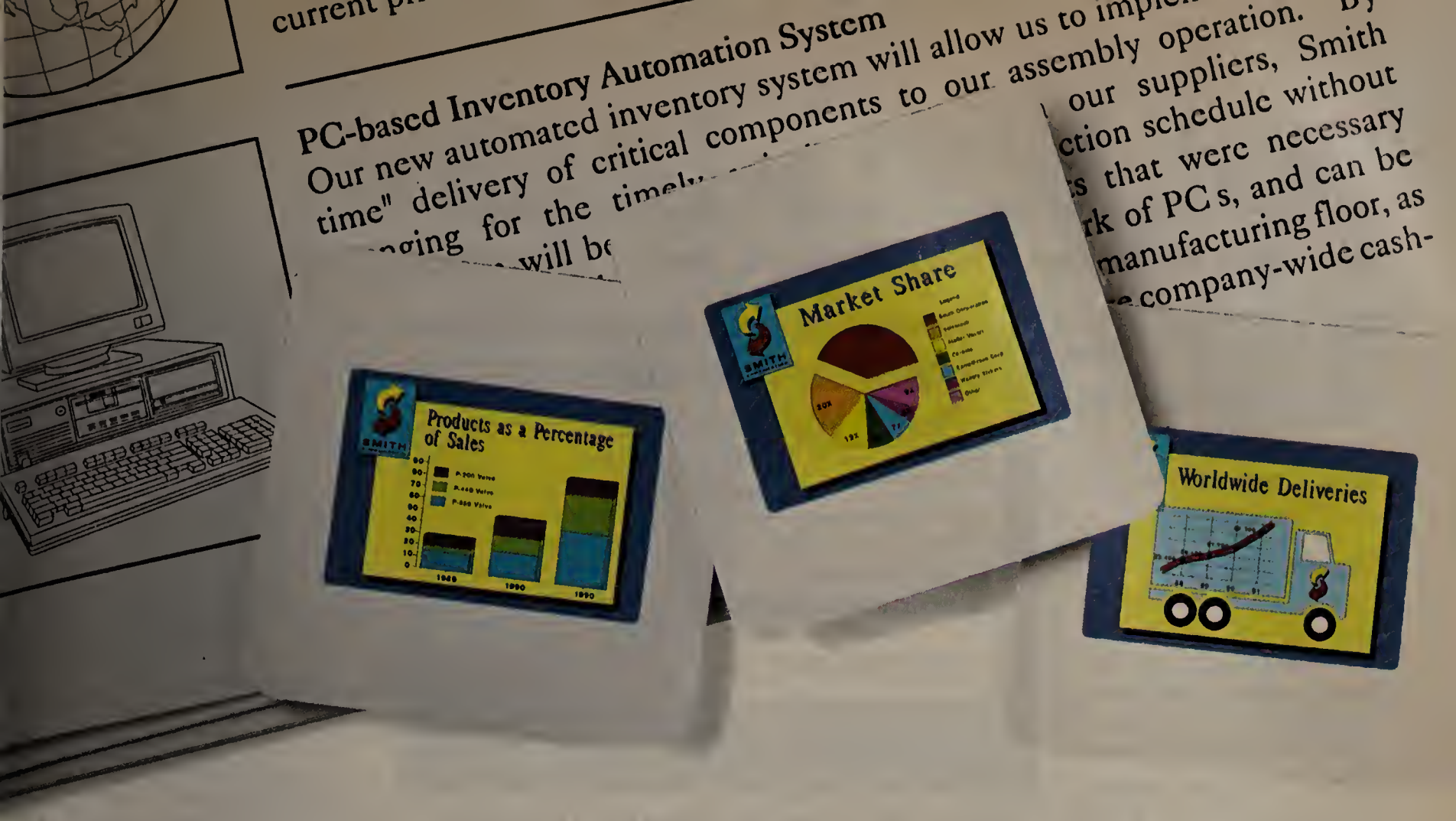
If you don't need all that grief, consider the 14.4EX, which says yes to all the above, includes *Crosstalk Communicator* software, offers the longest warranty in the business (three years), and sells for $699.

It gets better. The 14.4EX's internal 80188 processor is a master communications negotiator, not only falling back to match slower modems or compensate for noisy lines, but also jumping forward quickly when it senses improved line conditions.

The result is an intelligent, all-purpose communicator that takes the hassle out of selecting the right modem. This is the modem that says it's time to trade up. You won't go wrong. —*Alan Kaplan*

IN BRIEF

Intel 14.4EX External Modem
Current users of 2400-baud modems have nothing to lose and everything to gain by upgrading to this well-conceived, feature-packed modem.
Intel Corp.
C03-07
5200 N.E. Elam Young Pkwy.
Hillsboro, OR
97124-6497
800/538-3373,
503/690-7000 (fax)
Reader service no. 649



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Writer's Toolkit, American Heritage Dictionary, Webster's Dictionary, Word for Word/Professional 5.0

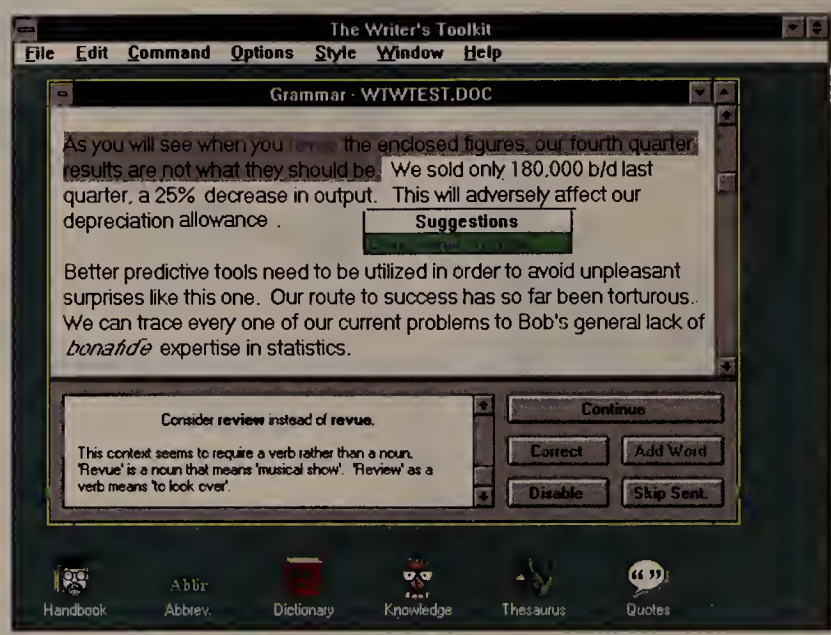
Four Word Processing Utilities That Help Sharpen Your Writing Skills

Now that you've got everything you need in a word processor, it's time to get serious about all that other stuff—like writing. Here are four new products designed to help you do that, and more.

The Writer's Toolkit

One of the hottest new arrivals is *The Writer's Toolkit*, a perfect companion to any *Windows* word processor, such as *WordPerfect for Windows*, *Ami Pro*, or *Word for Windows*. This package combines seven powerful reference tools in one elegant *Windows* package. Included are Houghton-Mifflin's *CorrecText Grammar, Style, Punctuation, and Speller Checker*; an *American Heritage Dictionary* with some 115,000 definitions; a *Roget's Thesaurus* to help you find synonyms for more than 42,000 words; a *Concise Columbia Dictionary of Quotations* containing 6000 quotes from sources ranging from Aristotle to Frank Zappa; Houghton-Mifflin's abbreviation program, which you can use to find the abbreviations and acronyms for states, computer terms, titles, and more; *Written Word III* to jog your memory about those long-forgotten rules from English 101; and a mini-encyclopedia called the *Dictionary of Common Knowledge*.

The Writer's Toolkit is one of those packages that was born for *Windows*. A drag-and-drop feature, for example, lets you drag a word from any toolkit window and drop it on a toolkit icon to find, for instance, a definition or synonym. It also lets you retrieve data from all open references simultaneously by entering the questionable word only once. At $129, you can't do much better.



The Writer's Toolkit combines seven reference tools in one Windows package, including a 115,000-word dictionary and a mini-encyclopedia.

The American Heritage Electronic Dictionary

This 116,000-definition dictionary works with any word processor, spreadsheet, data base, or other text-based program and comes with a reverse search capability that lets you do strange and wonderful things you can't do with any book-form dictionary. For example, you can find words when you know only the definition, a related concept, or just a vague meaning. You can also perform searches using words like *and*, *or*, and *not*—for example, if you type *India and currency*, it will locate the word *rupee*. The product retails for $99.

The Random House Webster's Electronic Dictionary & Thesaurus College Edition

This 180,000-word dictionary is really more like a small encyclopedia. It's about as up-to-date as you can get, with listings for such au courant items as *sexual harassment*.

The product works with ten of the most popular DOS-based word processors. A hot key takes you from your word processor into the dictionary or an accompanying electronic thesaurus. If you're just browsing, you can pick a general category such as *computer* and get a long list of terms including *assembly language* and *laptop*. If you're stuck, you can call on a three-layer help feature that has information on how the program works, a complete listing of terms that can be used in a search, and a pronunciation guide. The package sells for $129.

Word for Word/Professional 5.0

Hate reformatting text from another word processor? This new version of the popular *Word for Word* file conversion utility is the answer. With this handy little package, you can convert files from more than 90 different text, spreadsheet, data base, and mail-merge formats into your favorite program, and still preserve the formatting of the original document. You can view the file before you convert it, and you don't have to tell the program what application the file came from.

The new, improved version features a handsome interface with pull-down menus, pop-up dialog boxes, and full mouse support. To make the conversion, select the target format, tag the source files from the on-screen list, and choose *Begin*. And this baby is fast—you can convert three pages a second, and up to 1000 files at a time. The product sells for $149; an upgrade costs $40, and a LAN version is available.

—*Bronwyn Fryer*

IN BRIEF

Four word processing utilities provide reference material and file conversion for writers, managers, and students.

The Writer's Toolkit
WINDOWS Systems Compatibility Corp.
401 North Wabash #600
Chicago, IL 60611
312/329-0700,
312/670-0820 (fax)
Reader service no. 638

The American Heritage Electronic Dictionary
WordStar's Writing Tools Group, Inc.
One Harbor Dr. #111
Sausalito, CA 94965
800/523-3520
415/332-8780 (fax)
Reader service no. 639

The Random House Webster's Electronic Dictionary & Thesaurus College Edition
Reference Software Int'l
330 Townsend St.
San Francisco, CA 94107
800/872-9933,
415/541-0509
Reader service no. 640

Word for Word/ Professional 5.0
Mastersoft, Inc.
6991 E. Camelback Rd., Ste. A-320
Scottsdale, AZ 85251
800/624-6107,
602/970-0706 (fax)
Reader service no. 641

Round-The-Clock Protection

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Now you can protect your computer against both viruses and intruders 24-hours a day for just $69, but only if you order by April 30, 1992.

More than one out of every ten PCs were crippled by viruses last year, according to *ISPNews* (June 1991). And the frustration and financial loss brought on by hackers is beyond calculation.

AllSafe™, from XTree Company, is the most powerful protection program available. First, AllSafe contains ViruSafe™, the most effective medicine for the prevention, detection and elimination of known or unknown viruses, whatever their alias or mutation.

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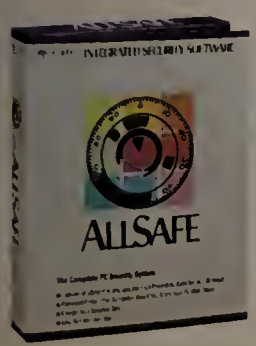

AllSafe guards against unauthorized access, too. Flexible password protection lets you limit access to as much of your hard disk as you like: how your computer is booted, access to DOS commands, disk read and write access, and more. Plus AllSafe provides a security audit trail and log that reports any break-in attempts.

For all its preventative power, AllSafe is easy to install, configure, and use - like you'd expect from an XTree product.

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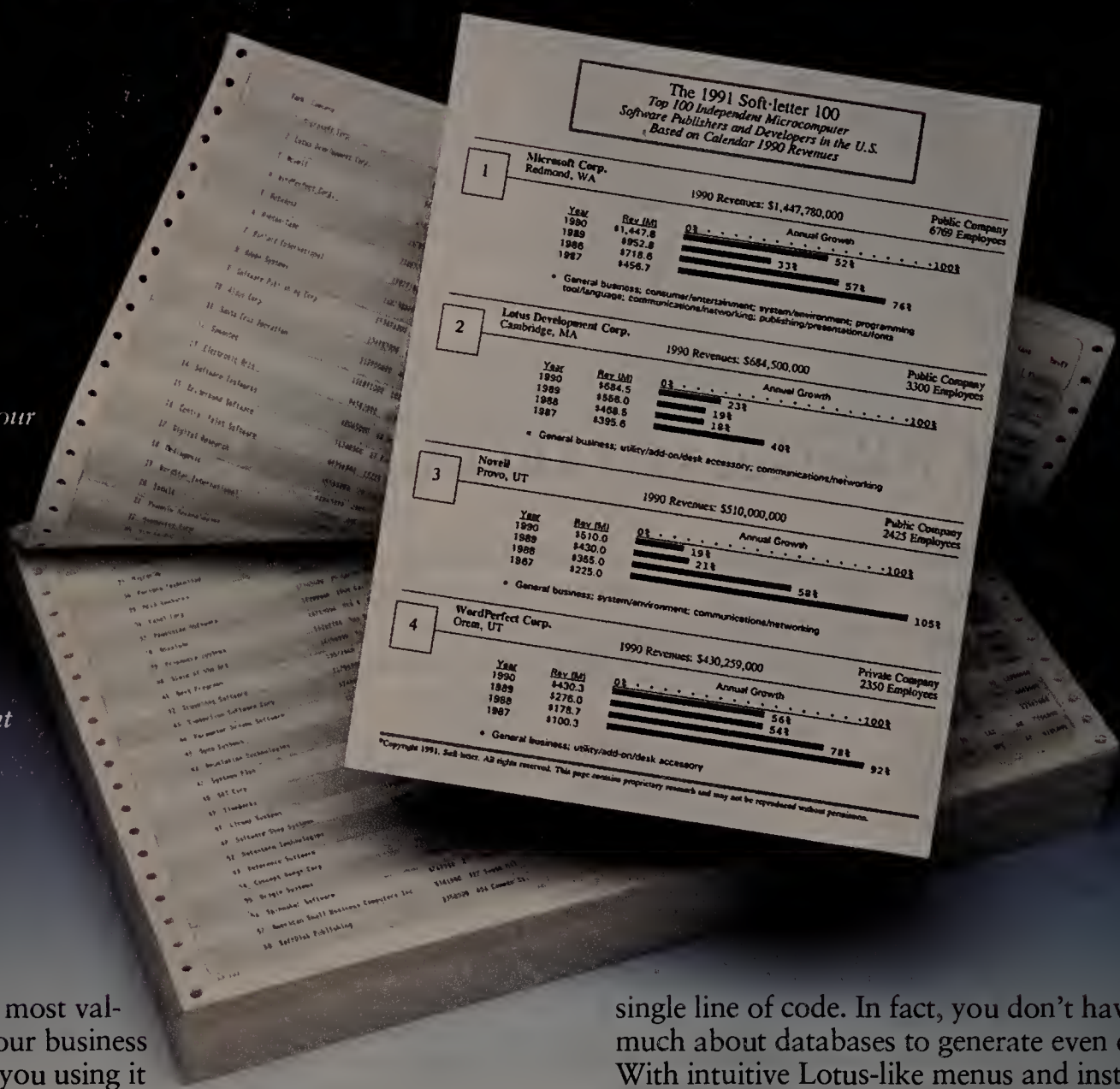

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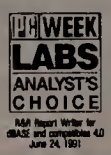

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Circle 181 on reader service card

Master 486SX-25, Legacy 486SX-25

Arche Masters Its Own Legacy

Featuring 4MB of RAM and a 128K memory cache, the Arche Master 486SX-25 is built around Intel's 25-MHz 486SX chip.

When you need power, every little tweak helps. So when Intel quietly introduced a 25-MHz version of its 486SX chip, Arche wasted no time. The company produced two of the first systems based on the chip, the Master 486SX-25 and the Legacy 486SX-25.

The two machines could be twins. The Legacy and Master 486SX-25 PCs have the same features and dimensions, and each is available in small or large chassis.

Here's the difference: The Master 486SX-25 ($3449) comes bundled with a two-year on-site warranty, *Windows 3.0,* and a mouse; the Legacy ($2698) does not.

Both feature a 25-MHz Intel 486SX chip; 4MB of RAM (upgradable to 32MB); a 128K memory cache; a socket for a Weitek 4167 math coprocessor; an IDE disk connector; a 5¼-inch 1.2MB floppy disk drive; and an AT-compatible system bus that runs at a user-selectable 8 or 11 MHz.

Both systems are available in a small chassis (16 by 17 by 6¼ inches) or a large one (roughly 4 inches taller). The smaller models come with three 5¼-inch half-height drive bays; the larger models have two additional half-height bays. Other features include a 101-key keyboard, one parallel and two serial ports, six 8/16-bit and two 8-bit expansion slots, a 200-watt power supply, and MS-DOS 5.0.

Arche sells its monitors separately. Its monochrome VGA monitor goes for $295. Its color super-VGA monitor with a 1024 by 768 maximum resolution costs $565. If you're looking for maximum power, these machines are worth taking out for a drive. If service is a big concern, the Master's two-year warranty should keep you comfortable, but if you can fix it yourself then the Legacy is a good deal.

—*Jeff Bertolucci*

IN BRIEF

Master 486SX-25, Legacy 486SX-25
Two 486SX PCs that use Intel's 25-MHz chip and come with 4MB of RAM and a 128K memory cache.
Arche Technologies
48502 Kato Rd.
Fremont, CA 94538
800/437-1688,
510/683-6754 (fax)
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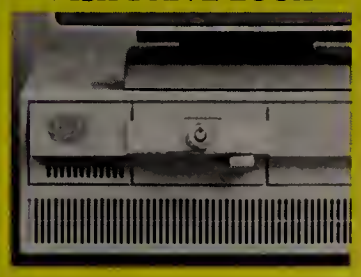

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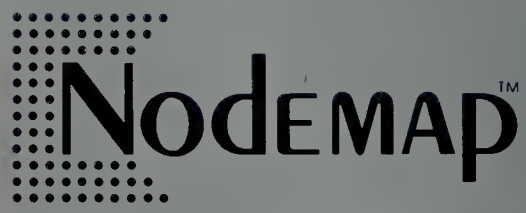
Circle 256 on reader service card

Throw Out Your Diagram Templates

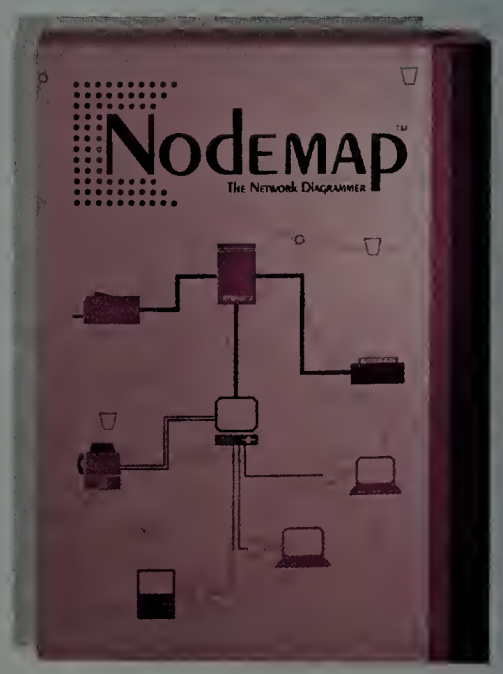
...is an amazing program that moves diagramming from the quill-pen age to the computer age. In any business there are processes and procedures that must be documented. Diagrams have always been useful, but the difficulty in producing them by hand has severely limited that usefulness. No more, as EasyFlow is a powerful program dedicated to the fast creation and easy modification of Flow charts, Dataflow diagrams and Organizational charts.

The program's powerful features include automatic line routing and automatic text centering inside shapes. The multi-level charting ability, 270 output device options and unparalleled support for desktop publishing and graphics packages have helped position EasyFlow as the DeskTop Flowcharting tool of choice with corporate managers.



...is specifically designed to help prepare LAN and WAN diagrams, telecommunication diagrams, and similar diagrams showing the interconnection involving computers and communication devices. Nodemap comes with the standard telecommunication and network planning symbols. Why spend valuable time tracing templates when you can select from a predefined library of shapes?

Nodemap makes it easy to compose, revise and print network related diagrams. The program's features allow you to track interconnections as well as important information about cabling and software rights. When your network changes, the diagrams can be easily modified and reprinted. Even large changes are effortlessly handled by a sophisticated cut and paste facility.



HavenTree's products are network ready with metering software and run on IBM PCs and compatibles (provided they have 512 K memory and a graphics video adapter).

HavenTree Software Limited
P.O. Box 1093-M
Thousand Island Park, NY 13692

Orders: 800-267-0668
Info.: 613-544-6035 ext. 27
Fax: 613-544-9632

Circle 98 on reader service card

Epson ActionLaser II

Laser Printing for Under $1000

Throw away that loud dot matrix! Name-brand laser printer prices are plummeting. For $999 retail, and considerably less on the street, you can get solid laser output with the ActionLaser II from Epson.

The ActionLaser's upgrade potential makes it a good investment for first-time laser buyers. It comes with 512K of memory—not enough for graphics, but you can upgrade to a maximum 5.5MB using standard SIMMs. Although Courier is its only resident font, the ActionLaser's cartridge slot lets you add HP-compatible font cartridges, and you can always download soft fonts. For even better font handling, the ActionLaser accommodates an IC card slot for Adobe PostScript. Resolution is a standard 300 dpi.

Other features include a 100-sheet paper tray and automatic interface switching.

If you're a home-office or small-business user looking for a printer that can grow with your needs, Epson's ActionLaser II offers adequate features at a good price.

—*Susan Lusty*

IN BRIEF

ActionLaser II
Epson's ActionLaser II provides laser output at a dot matrix price.
Epson America, Inc.
20770 Madrona Ave.
Torrance, CA
90509-2842
310/782-0770,
310/782-5220 (fax)
Reader service no. 647

Diconix 180si

Print on the Run

Don't get caught with that ground-breaking report trapped in your notebook—take your printer along too. Portable printers are coming down in size, weight, and price. One notable new entry is Kodak's Diconix 180si, a less expensive and more functional portable than the earlier Diconix 150 Plus.

Its price, weight, and speed best most other portables. For $399, the 180si prints almost two pages per minute, twice as fast as most portables. It's one of the lightest luggables around, weighing less than 3 pounds (without battery, 3.5 with one). The unit hooks to a serial or parallel port, but the former option costs $20.

If you're looking for wide output variety, the 180si has four resident fonts: Helvetica, Prestige 10 and 12, and Gothic. Kodak includes IBM Proprinter and Epson FX-85 emulations, along with a *Windows* driver. However, at 192 dpi, your text will not be as crisp as that of most competing portable printers, such as Canon's BubbleJet.

Otherwise, the 180si is perfect for those on the go who need quick printing.

—*Susan Lusty*

IN BRIEF

Diconix 180si
Kodak's Diconix 180si won't weigh you down physically or financially.
Eastman Kodak Co.
901 Elmgrove Rd.
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800/344-0006
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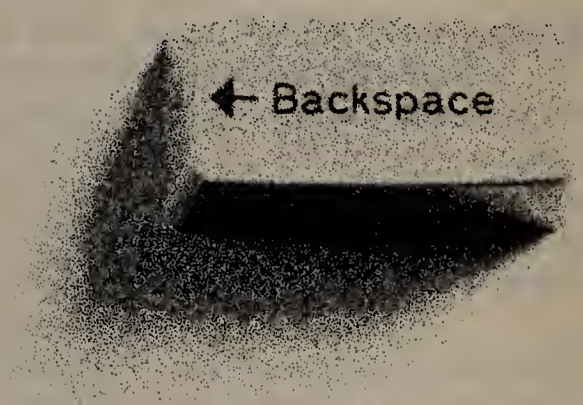

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Look at the comparison below. We took the information from the summer issue of Peachtree Times. Peachtree informs its customers of add-ons available for their software from third-party developers. Most of their add-ons are standard features in ACT-Plus. We added up the cost of the add-ons that are free in ACT-Plus. As you can see, you would have to pay over $6900 to make Peachtree do what ACT-Plus does!

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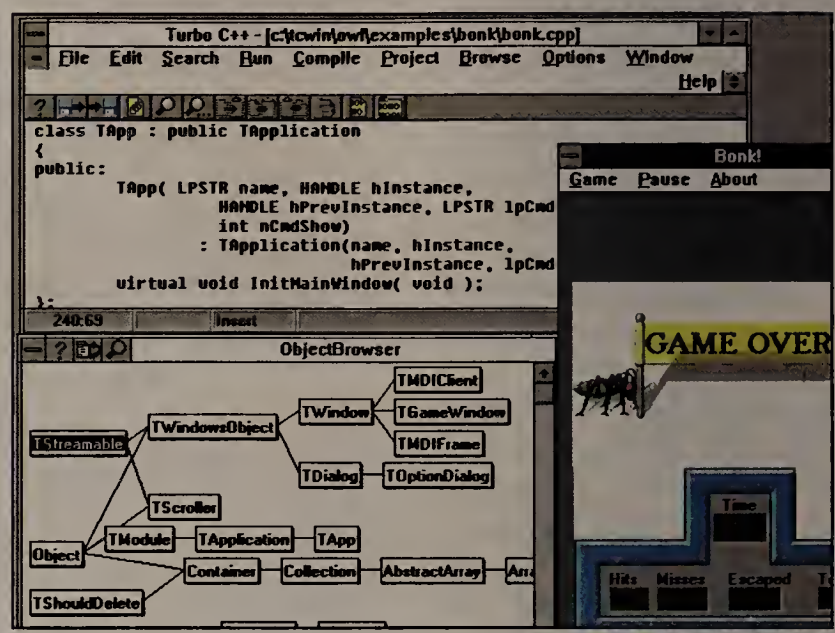
Turbo C++ for Windows

Borland Gives Windows an Object



Turbo C++ for Windows can compile, link, run, and debug programs within Windows, and it includes Borland's acclaimed Object Windows Library (OWL). However, it lacks an application generator.

Borland's *Turbo C++ for Windows* is the first version of *Turbo C++* that can compile, link, run, and debug programs completely within the *Windows* environment.

Turbo C++ for Windows, priced at $144.95, is positioned head-to-head with Microsoft's *QuickC for Windows*, and the products have many similar features. However, the main difference—and *Turbo C++ for Windows'* big edge—is object-oriented programming.

Turbo C++ for Windows is a full implementation of *C++ 2.1* (with a few *C++ 3.0* features, such as templates) and includes Borland's much-acclaimed Object Windows Library (OWL) application framework. OWL is a library of C++ classes that represent parts of the *Windows* user interface, such as windows, dialog boxes, buttons, and list boxes. The advantage of OWL is that it frees programmers from the details of coding since much of the code is encapsulated out of sight within the class library.

However, *Turbo C++ for Windows* does not come with an application generator—like the one in *QuickC for Windows*, QuickCASE:W—that can piece user interface objects together into a skeleton application. This makes the learning curve steeper; you first have to learn to use OWL, or write with the non-object-oriented *Windows* cells, before you can create your first *Turbo C++ for Windows* program.

Turbo C++ for Windows also can't create DOS EXE files, but it comes with *Turbo Debugger for Windows*—the same full-featured *Windows* debugger program that comes with *Turbo C++*.

—*Brett Glass*

IN BRIEF

Turbo C++ for Windows
Borland brings object-oriented programming to Windows.
Borland Int'l
1800 Green Hills Rd.
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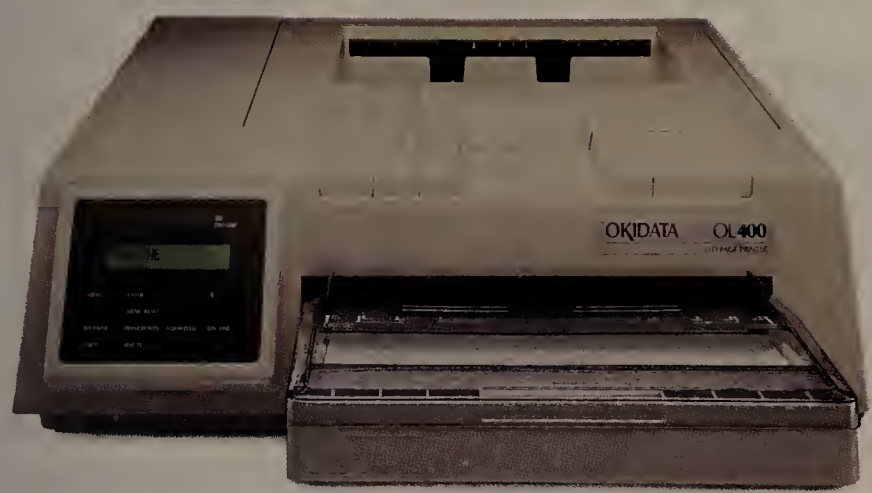

$999 Okidata OL400

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Low profile: 5½″

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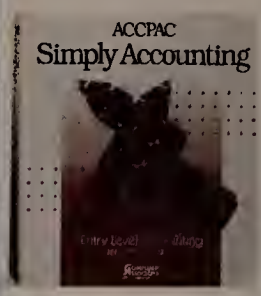

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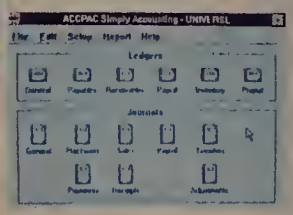

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Circle 29 on reader service card

UPDATE

New Versions of Your Favorite Products

Insight 486SX-20 Cache

The Insight 20-MHz 486SX includes 4MB RAM, 64K RAM cache, a 130MB IDE hard drive, two floppies, a 14-inch super-VGA monitor, and 16-bit super-VGA card—all for $1995.

Six months ago it was news when the price of 486 PCs began to drop below $3000. Now these machines are yours for less than $2000 from direct-mail vendors. And these aren't necessarily bare-bones machines either.

Take Insight's 20-MHz 486SX for $1995. For that low price you also get 4MB RAM, a 64K RAM cache, a 130MB IDE hard drive, one 3½-inch and one 5¼-inch floppy, a 14-inch super-VGA color monitor, and a 16-bit super-VGA card. Insight will upgrade you to 25-MHz speed when the chips are available. And you get a one-year parts and labor warranty. Insight Computers, Inc., 1912 W. Fourth St., Tempe, AZ 85281; 800/776-7600, 602/350-1176.

Reader service no. 662

PC Tools 7.1

This upgrade promises to fix a variety of hardware/software bugs in *PC Tools 7.0*, including incompatibilities with Microsoft's DOS 5.0 and a collection of video cards. *PC Tools 7.1* includes an upgraded version of *PKLite*, the file compression utility from PKware, that is now fully compatible with DOS 5.0. Central Point Software has also patched up other DOS 5.0–related glitches that resulted in memory conflicts and data loss. *PC Tools 7.1* is free to all registered owners of *PC Tools 7.0*. Installation instructions are included with version 7.1 disks, but the documentation remains unchanged. Central Point Software, 15220 N.W. Greenbrier Pkwy. #200, Beaverton, OR 97006; 503/690-8090, 503/690-8088 (fax).

Reader service no. 663

Distinct Back-Up for Windows 2.4

Distinct Back-Up for Windows lets you perform hard disk backups while running other *Windows* programs. Version 2.4 features a collection of new features, including a "push-button" menu, improved data compression, and password protection for *Windows*. Also new is a separate, DOS-based restore program that allows you to restore a *Windows* backup without having to load *Windows*—particularly handy after a total hard disk failure. Version 2.4 will back up and restore empty directories, and automatically create destination directories on a network drive for your backup files. *Distinct Back-Up for Windows 2.4* is $129; and $29 for upgrades. Distinct Corp., P.O. Box 3410, Saratoga, CA 95070; 408/741-0781, 408/741-0795 (fax).

Reader service no. 664

BetterYet III

Do you want some of the features of the HP LaserJet III without having to dump your LaserJet II? Output Technology Corporation thinks it has the answer with BetterYet III, a font cartridge that gives LaserJet II printers many of the LaserJet III's fonts and scaling features. BetterYet III comes with the same Agfa Intellifont scaling technology found in the LaserJet III, and provides 100 percent font compatibility with the LaserJet III, Output Technology says. The $299 cartridge has the same seven bit-mapped fonts, one stick font, and eight outline fonts found in the LaserJet III's U.S. and international character sets. However, BetterYet III does not include the LaserJet III's Resolution Enhancement technology. Your LaserJet II printer needs at least 1.5MB of RAM to run BetterYet III. Output Technology Corp., 2310 N. Fancher Rd., Spokane, WA 99212-1381; 800/468-8788, 509/536-0468.

Reader service no. 665

Crosstalk XVI 3.8

Crosstalk XVI 3.8 now makes it easier for you to transfer files to and from the CompuServe on-line information service, as well as bulletin board system (BBS) software. This version supports an additional seven file transfer protocols, including CompuServe B+, XMODEM CRC, XMODEM-1K, XMODEM-G, YMODEM/Batch, YMODEM-G, and ZMODEM. You now can transfer files remotely through error-correcting modems, and send individual or multiple files in a single transmission. Other features include 19 new and expanded script commands that allow you to type two letters to perform specific tasks, such as setting up long distance prefix numbers. *Crosstalk XVI 3.8* costs $195; upgrades are $49, and free for users who purchased the program after July 31. Digital Communications Associates, 1000 Alderman Dr., Alpharetta, GA 30202; 800/348-3221, 404/442-4000.

Reader service no. 666

For more information about any product, contact the manufacturer or circle the number on the reader service card.

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Simple, Intuitive Contact, Time, Client and Communication Tracking.

REVIEWER'S NOTEBOOK: *A must for businesspeople who need to track dozens of commitments, outside contacts and opportunities. Provides fast, easy sales and marketing information management. As information changes and grows, the SuperOffice database is updated, allowing instant access to all kinds of useful combinations, perfect for the rigors of this environment. Excellent reporting, a great set of tools for easy customer/client management, comprehensive customer tracking, direct mail de-mystification, telemarketing tracking, lead management (how many of those do you burn?), sales forecasting and much more. In-depth contact management and follow-up tools. Completely menu driven, simple to understand and use to its potential, SuperOffice is a magnificent productivity tool. Conventional databases simply cannot produce easy, on-demand customer information management with the speed and completeness of SuperOffice.*

"The Information Law" states that knowledge must be accessible to everyone — including the managers and executives that are responsible for the company's success. If not, then "Murphy's Law" automatically kicks in and you could be headed for trouble. Managers and executives require a unique set of figures, indicators and reports. They need raw power behind their information and contact management efforts. While computers are used for a variety of "back-office" tasks; word processing, accounting, orders, billing and payroll, they sometimes hold information about customers, markets and trends hostage. SuperOffice is the first product we've seen that combines dozens of important features used often in fast-paced environments, with an easy-to-use operation — that won't change the way you work. You get timely information about your customers and clients, sales activity and tracking, direct mail, lead and inquiry management, sales forecasts, employee activity reporting/tracking and more.

SuperOffice allows employees at any level of expertise to become productive instantly. Work loads are more easily handled and time isn't wasted, vital information doesn't sit untouched or lost and efficiency is boosted with little effort. This remarkable product puts four powerful, easy-to-use office management tools — client contact directory; daily schedule planner; follow-up tracking and correspondence templates — together with a shared database! So vital, up-to-the-second data is at everyone's fingertips. It's the most advanced concept in company-wide data access and it works like a charm.

All of the individual tools are fully integrated for streamlined operation, and can be used as a single- or multi-user database system.

Diary.

Included in the Diary is the Agenda, an advanced time planner that allows complete control over daily schedules in a familiar format. References include customer names and notes detailing the activity. Privacy encourages use of program for all scheduling, eliminating the need to maintain multiple calendars and ensuring that action items are not overlooked.

Planned activities in the To-Do List remain visible until scheduled in the Agenda or completed. Activities that are not yet scheduled for a specific time and date are entered in the To-Do list from either the Diary or the Follow-Up module. Activities not completed on a scheduled day "fall-off" the Agenda and reappear in the To-Do list for rescheduling.

Follow-Up.

Follow-up provides a comprehensive overview of past and planned activities by account and provides key information about the types of services you are providing your customers and clients. When a customer calls, anyone within the organization can scan all past and planned activities and be of immediate service. This improved response time means greater customer/client satisfaction.

Follow-up allows you to view all company-wide activity related to a specific customer or all customers, including meetings, telephone calls, product demonstrations and correspondence. Follow-up is directly linked to the Diary to capture all planned and completed activities.

Customers.

The Customers' file stores all data about your customers, clients and prospects, including address, phone, fax, and key contacts. An unlimited number of customers and contacts can be entered, with room for notes about each person. Because SuperOffice utilizes a shared database, all users can edit any record. This eliminates data synchronization problems and allows everyone to have the same up-to-date information about each customer.

Included in Customers is a scrollable "Interests" table (user-defined and allowing an unlimited number of entries) that provides a number of variables for sort and search functions. Also included is automatic dialing using a modem for efficient telemarketing.

Customers also allows you to record anticipated and actual dollar sales per account, with probability estimates for anticipated sales. This allows performance tracking vs. budgeted quota for assigned sales personnel, a quick overview of pending business activity, future sales forecasting and the ability to adapt sales and marketing strategies in a timely and productive manner.

Letter, Fax and Spreadsheet Templates.

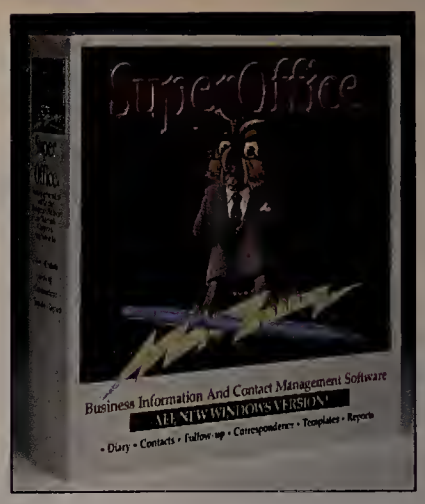
SuperOffice simplifies correspondence by providing a direct link between a selected customer record and various pre-designed letter and fax templates, which work with most popular word processing software. By searching for a specific account and choosing a template, the company's mailing address, contact person and date are automatically inserted in the document. The correct font, size and style are already in place, ensuring ease-of-use and error-free writing, while maintaining a consistent style, feel and message for all company correspondence.

Saved documents are archived by account, allowing a comprehensive overview of all correspondence by all users. Spreadsheet templates work with Microsoft Excel™ and Lotus 1-2-3,™ allowing the creation of quotes, price lists, forecasts and travel expense forms.

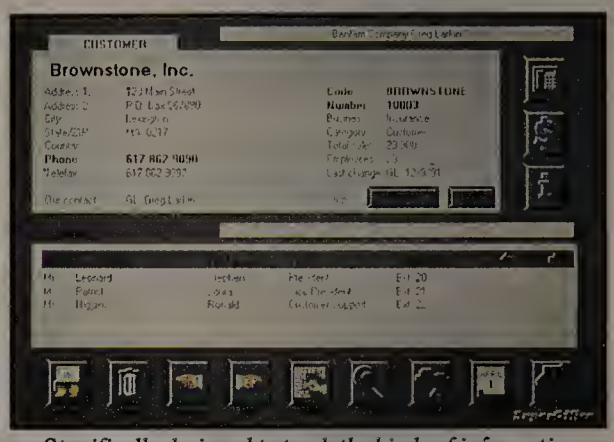
Reports.

Four report types allow a variety of options.

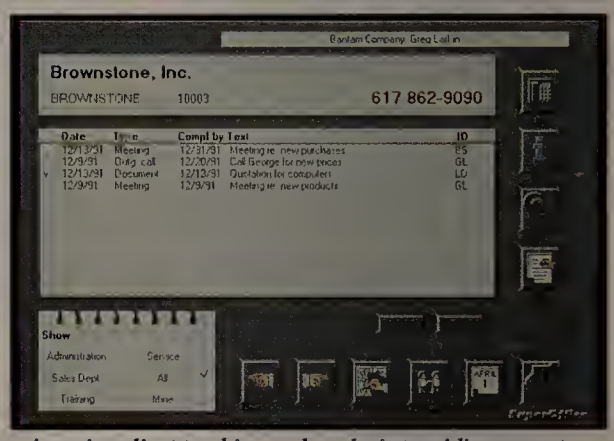
- **Customers, Businesses & Categories:** segments customers/clients and prospects by business type and category, allowing you to target specific categories for further investigation or action.
- **Customer Lists & Mailing Labels:** for targeted mailings, this report allows you to search the customer database on a variety of criteria, including contact name, zip code, business type, category, interest, total sales, and number of employees. It automates mail-merge, defines follow-up activity to selected customers and automatically creates a follow-up note in each account record. Customer Lists is an excellent tool for direct marketing, telemarketing, and lead management and fulfillment, as well as evaluation of the effectiveness of a specific marketing campaign.
- **Customer Follow-up:** lists all the customers with whom you have planned or completed activities. Reports can be generated by account, employee, group, all employees and/or follow-up type.



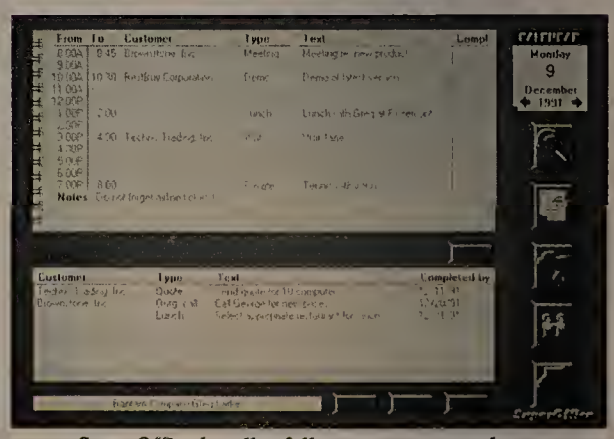
- **Sales Reports:** lists actual and projected sales by customer, employee, group, and/or all employees, with a probability of close and specified dollar amount. Sales Reports allows managers to quickly view weekly sales reports indicating actual sales vs. budget, as well as expected future sales including the level of outstanding quotes and expected close dates.



Specifically designed to track the kinds of information needed by business people dealing with clients or the public.



Amazing client tracking and analysis providing a comprehensive overview of past and planned activities.



SuperOffice handles follow-up, correspondence, meetings and more.

SUPEROFFICE

BAQ3795A **SuperOffice Single User** **$295.00**
BAQ3795B **SuperOffice 5 User** **$1295.00**
BAQ3795C **SuperOffice 10 User** **$1795.00**

Requires 286 or higher; Windows 3.0; Minimum 2MB RAM; Monochrome, gray scale or VGA monitor; Any laser printer or dot matrix printer.

Call for further information on Macintosh Version.

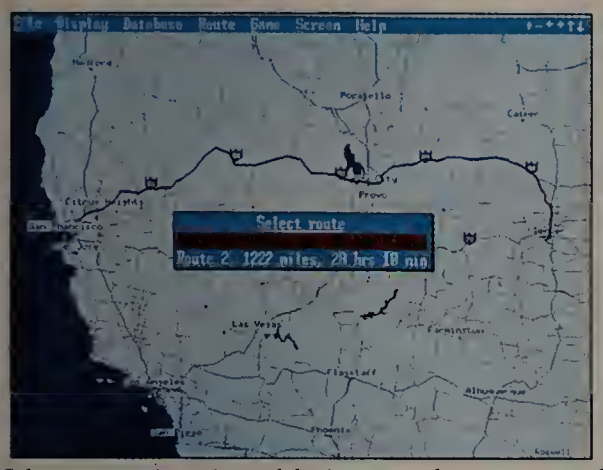
Mon.-Fri. 8AM-10PM, Sat. 8:30 AM-8:00PM & Sun. 11AM-5PM (EST).
Or, use our 24-hour fax line: (305) 444-5010.

1-800-888-4437

The Intelligent Road Atlas For Your PC!

Planning a vacation? Heading out on the road on business? Now there's a system that helps you plan any road trip for fastest, prettiest or most convenient route — with hundreds of up-to-date, color maps right on your computer screen.

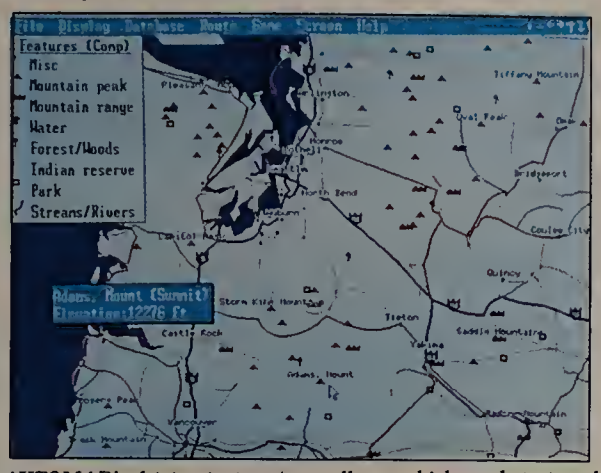
Clear, detailed maps that can get you anywhere in the United States that you want to go. Just tell AUTOMAP where you're going, when and where you'll be starting from, what areas you'd like to avoid, what areas you'd like to visit on the way and how you like to drive. It's fast, fun and informative.



Select your starting point, end destination, and areas to visit and let AUTOMAP create a detailed map of your next trip!

AUTOMAP's powerful intelligence takes over from there. Instantly, it searches its massive database of over 300,000 miles of roads and highways for the best route to meet your requirements. It even gives you a list of alternative routes if you decide you'd like to wander a bit.

AUTOMAP also gives you a list of "places" from over 50,000 in its database. It's like having a travel guide pointing out the very best there is to see and do. If you're a business travelLer, you won't have to worry about being unfamiliar with new territories, just a quick session with AUTOMAP and you'll not only know exactly where you're going, you'll be on the very best road to get there.



AUTOMAP's driving instructions tell you which roads to travel, how far to go, and approximate traveling time.

AUTOMAP allows you to view your entire journey as a full color map and gives you all the details on mileage. Zoom out to see the entire region, or zoom in to see every detail.

AUTOMAP's driving instructions list all the roads you'll be traveling, exactly how far to go, exactly where to turn and even the signs to look for! These maps and directions can be viewed on your screen and printed out to refer to as you need them.

Pressed for time? Need a hotel? AUTOMAP provides you with travel times, mileage, and information on hotels and attractions. It also provides information on many cities and precise directions (including landmarks) for the most scenic drives in and out of each of them. What a great vacation planner!

Government Highway Data.

AUTOMAP uses data with the renowned accuracy of government sources. It has been designed to remain accurate with constant updates of new maps and details as they become available. AUTOMAP has proven itself with the most demanding businesspeople and vacationers. AUTOMAP will save time, money and frustration. In fact, surveys show that AUTOMAP can easily save up to 20% in driving time and related costs.

GET FREE U.S. ATLAS WITH THE PURCHASE OF AUTOMAP

AUTOMAP

BAQ4098A **AUTOMAP** 3½" **$79.95**
BAQ4098B **AUTOMAP** 5½" **$79.95**
Hercules, CGA, EGA, VGA, 512K RAM, hard disk, mouse recommended.

Cleaner and Simpler Windows...

Question: What's the easiest, most intuitive way to run a PC?
(For the answer, read on...)

The jump from your PC's C:> to Windows was a major advance for ease-of-use. But there was still room for improvement. Norton Desktop took another step forward, but didn't go far enough. Finally, WinTools has arrived, delivering new "Drag and Drop" technology and the kind of power that is best summed up in two words: *Simply and Visually*.

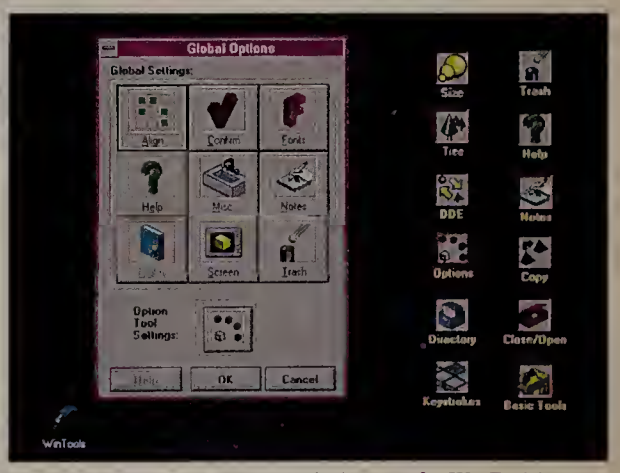
WinTools is the first, complete, visual interface that lets you easily customize your computer screen and automate your work, plus many more features.

Do All This with WinTools...

- WinTools remembers how you set up your desktop. So the next time you turn on your computer, you don't waste time recreating your environment.
- Manage files with "Drag and Drop" technology. Copy, move and delete files and subdirectories in the simplest way known — visually.
- Drag the icon of a file onto the icon of the word processor; your application is instantly launched and your file opens — all automatically.
- Choose from 100 included icons or create your own meaningful image.
- Set up one icon to run multiple applications with one click of the mouse. Automatically open all the files and applications you assign to a single icon.
- Control security on a network. Password protection can be set at any level, so users can have full access to their local hard drives, but not the server. Or, a company-wide interface can easily be built.
- Automatic backups are included, but you can also schedule and automate other functions as well.
- Introducing "BigSky," the virtual screen technology that lets you have 16 full screens, each customized for a specific type of work. Set up one as a "phone calls desk." Set up another as a "writing desk." Have one as an "interview desk," and still another as a "drawing desk." All set up just the way you like to work, each independent and uncluttered, and each in their own screen. Then instantly switch between them with a click of the mouse. How convenient! And of course, when you turn off your computer, everything is remembered.

Solve Windows Problems

Administrative Assistant: Organize your daily activities to correspond to your boss' schedule. Set up one desktop for meetings, another for budgets and so on. Use BigSky to set up 16 full screen desktops and switch between them instantly.



Simply and Visually *— that's the keynote for WinTools' powerful new Windows' interface.*

Power User: Organize your desktop with icons that represent applications and data files. Your selected programs, files and communications can be run all at once simply by clicking. Schedule unattended runs, such as doing downloads late at night.

Network Administrator: Provide access to the network, but with control. Set up your network with passwords and create tools that give users as much freedom as desired while maintaining a secure environment. Passwords can be applied globally, at the desktop, or at individual levels.

As quoted in *PC Week*, "WinTools is really a breath of fresh air... Anyone who uses Windows a lot will appreciate WinTools."

WINTOOLS

BAQ4210 **WinTools** **$149.00**
Requires Microsoft Windows 3.0.

International Orders: 305-443-8212 | 24-Hour Fax Line: 305-444-5010 | **FREE** FEDERAL EXPRESS **SHIPPING**

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Coral Gables, Florida 33134

THE ALL-NEW CD GALLERY!

The Complete, Interactive CD-ROM Package!

Just Released! Includes CDR-36 or 72 Reader, Stereo Speakers, Headphones And 7 Software Discs!

This one box is your ticket to the incredible world of CD-ROM. Everything you need to get started is inside — including seven of the hottest CD-ROM software titles in the industry. Your Koss SA/30 amplified stereo speakers pump out the sound as you explore full-interactive, multimedia computing. This is a complete package, perfect for home, education and business.

Hundreds of thousands of diskettes' worth of information, fun and productivity are packed onto just 7 speedy CD-ROMs! They include the amazing, full-length encyclopedia, complete with enhanced sound. There's a comprehensive world atlas, presented in full-color, the incredible Battle Chess, a Time Table of History, The TIME Almanac on CD, Great Cities of The World and Mammals, from the pages of National Geographic. Without a doubt, it's the perfect introduction to CD-ROM, with everything included, nothing else to buy.

I personally found Great Cities of The World fascinating, it's packed with information on hotels in Paris, entertainment in New York, bull fights in Madrid and shopping in London. This multimedia guide covers tours by noted travel writer Jan Morris and information on culture, restaurants and shopping. Winner of the 1991 MPC Award, this disc includes a Travel Planner, Fast Fact section and quiz.

The New Grolier Electronic Encyclopedia covers hundreds of topics in great detail. Many entries contain enhanced sound and vibrant color. It is the premier CD-ROM encyclopedia. 33,000 articles, 1,500 full-color graphics, including numerous maps and steroe sound, make learning exciting.

Switch to National Geographic's Mammals and see animated sequences and full-color photos of everything from an aardvark to a zebra. A magnificent CD-ROM title that allows you to see and hear animals in their natural habitat. Contains both volumes of National Geographic's renowned work, with video clips bringing you closer than you thought possible to a wide variety of the world's most intriguing animals.

Need some hard facts about the economy? Sports? Politics? Open the TIME Almanac and get the answers from one of the most respected sources — TIME Magazine. Nearly 5,000 articles covering the major events of the 20th century. A great reference tool for home or business. The interactive features make information easy to find.

Or, slip in the Time Table of History: Science and Innovations. More than 6,000 interrelated entries show the chronology of historical, scientific and technological events from the beginning of time to the present day. Over 1,000 multimedia graphics and stereo sound. It's a smash-hit, best-seller!

From there, explore the earth's geography with The Software Toolworks World Atlas. This remarkable package contains the most extensive collection of full-color maps you'll find anywhere. There's also plenty of data about each country and region: rainfall, population, industry, crime and more. You can take a trip around the world in just a few minutes — great for students and businesspeople! Over 240 fully-detailed, fully printable maps.

For a little fun, try Battle Chess — it's chess as you've only imagined it! An entire medieval world is at war, and your pieces are more than rooks and pawns... they are moving knights, foot soldiers, and regal kings and queens. Each has its own unique character, displayed in both animation and sound.

Amplified, Stereo Speakers!

With the free stereo headphones and a pair of Koss SA/30 amplified stereo speakers, you'll actually hear the sounds of the world when you slip in a CD — whether on CD Gallery software titles or conventional audio CDs. NEC's CD Gallery is comprehensive and complete, providing everything necessary to get you up and running in minutes.

How The Readers Compare...

Complete CD-ROM Gallery	Response Time	List Price	Tiger Price
NEC CDR-72*	350 ms	$1652	**$599**
NEC CDR-36*	500 ms	$1502	**$599**

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What You Get in the CD-Gallery:

- NEC CDR-36 or CDR-72 CD-ROM Reader
- 7 CD-ROM interactive software titles
- Koss amplified stereo speakers
- Stereo headphones
- Interface kit
- Necessary cables and connections
- 3½" and 5¼" installation diskettes
- 4 Duracell® alkaline batteries
- Installation Guide & Software User Guides

System Requirements: IBM PC, XT/AT, PS/2, or 100% compatibles; minimum 640K available RAM; hard drive (minimum 5 MB available space); VGA graphics adaptor; DOS 3.3 or higher; at least one floppy disk drive (5¼" or 3½"); mouse recommended.

NEC CD GALLERY

BAQ8372 **CD Gallery w/CDR-72** **$599.00**
BAQ8336 **CD Gallery w/CDR-36** **$599.00**
FREE Guinness Disc of Records & Family Choice™ CDs with CDR-36 or CDR-72 Gallery Pack!
Specify XT/AT, PS/2, or NEC Prospeed or parallel SCSI interface kit.

A Railroad On Your Desktop!

It's the most fun I've had on my PC in years! Creating my own railroad line right on my screen — then create my own collection of customized cars! You design the track layout, using special tools that keep curves aligned and precise. You can design tracks of any configuration, including figure-8's and track switches.

And when the track is done, landscape the scene with buildings, trees, rivers, roads, bridges and more. Just select from the graphical menu bar as you design. There's also a complete set of drawing tools to create any type of layout, object or building. Design Your Own Railroad also includes an assortment of sample track layouts to get you going. Then build the ultimate train set! Choose from dozens of classic cars, modify them, colorize them, add logos, designs and more. Then put your design to the test... delivering goods and collecting the revenues.

Design Your Own Railroad

BAQ3790 **Railroad** **$49.95**
IBM PC XT, AT, PS/2 or compatibles; DOS 2.0 or later; 512K RAM.

The Thoroughbred Of Remote Control Software.

Incredible speed! Remote control access via modem to other PCs, customer's PCs, telecommunicating and teleconferencing and more — with full Windows support — and blistering speed. In fact, Close-Up 4.0 is designed specifically to take advantage of the Windows environment — yet it runs beautifully with DOS as well. Even complex VGA color graphs and charts from Lotus 1-2-3 can be transmitted TEN TIMES FASTER than the closest competitor. Screens paint and repaint almost instantly. Close-Up 4.0 supports Windows in 386 Enhanced, Standard and Real modes, with full keyboard and mouse support. When you link up remotely, the two screens and keyboards become one. Close-Up 4.0 is simple to use, it installs itself and operates with sleek pull-down menus. LAN version also available.

Close-Up 4.0

BAQ3798 **Close-Up 4.0** **$169.00**
IBM PC, XT, AT, PS/2 or compatibles; MS or PC DOS 2.0; modem.

TIGERSOFTWARE To Order Call Toll-Free: **1-800-888-4437** We Accept: VISA

Circle 259 on reader service card

Turn Your Black-And-White Hand Scanner Into An Explosive, True COLOR Scanner!

REVIEWER'S NOTEBOOK: *I own a 256 grayscale hand scanner and often scan photos or illustrations for use in the TigerSoftware catalog. I don't own a color scanner (they are very nice, but very expensive), however a color scanner would sure come in handy sometimes. I could use color to create color slide shows, presentations, newsletters — and posters of the kids. That's why I was particularly intrigued with the CAT Color Converter. It actually converts my B&W hand scanner into a true color scanner! Just attach your 4" wide hand scanner to the CAT Color Converter and scan your color photo 3 times, using the built-in colored filters. When you've completed your scans, the CAT software combines the images into a fully balanced, true color image automatically. A legitimate alternative to a color scanner, with top-notch quality.*

The CAT Color Converter works with all leading B&W scanners.

The CAT Color Converter allows you to capture thousands of colors and if you have a grayscale hand scanner, you'll get up to 16 million vibrant colors. If you've got a VGA display adapter, the optimal 256 colors will be automatically selected for scans with lifelike color and rich detail. The powerful CAT Color Converter software (included free) allows you to easily adjust the color palettes, brightness and contrast. Using this powerful software, you can create exportable .PCX and .TIF files in RGB format for use in desktop publishing, draw and paint programs (I work extensively in PC Paintbrush, DeluxePaint and ColorRIX, CorelDRAW! and Designer) to combine text, graphics, special effects and more. Everything you need is in the package: The CAT Color Converter scanning guide (12"×10"×1"), with built-in color filters, light source and hand scanner mounting device. You also get the CAT Color Converter image processing software, power adapter and complete documentation.

CAT Color Converter Supported Hand Scanners: The Complete Half-Page Scanner 200/400/GS; DFI Handy Scanners HS-2000/3000/3000 Plus; GeniScan GS-2000 Plus/4000/4500/B105G; Logitech ScanMan/ScanMan Plus/ScanMan 32/ScanMan 256; Marstek Mars 105/105 Plus/800; Mouse Systems PageBrush/32; Niscan/Niscan GS; Primax SE-400/SE-800.

Use Your Scanner With Your Laptop! Scan On The Road, At A Meeting Or At The Library!

A perfect match. Your portable or notebook PC and your hand scanner. The CAT Hand ScanAdapter LPT connects directly to your computer's parallel port and allows you to capture any information, photo or design—anywhere. The small, pocket-sized device slips into your briefcase and comes complete with CAT Image Enhancer software which automatically converts hand-scanned, dithered images into 16 levels of gray. It also allows you to create files for use in professional graphics manipulation. It's simple, fast and very convenient. Works beautifully with all leading black & white hand scanners that we tested: The Complete Hand Scanner and half-page scanner, Logitech, Marstek, DFI Handy Scanner and Geniscan. Allows direct output to Epson dot-matrix, HP LaserJet and DeskJet, supports Hercules, CGA, EGA and VGA display, allows automatic image scaling and cropping and more.

CAT Hand ScanAdapter LPT Supported Scanners: The Complete Hand Scanner 200/400; The Complete Half-Page Scanner 200/400; DFI Handy Scanners HS-1000/2000/3000/3000 Plus; GeniScan GS-2000/2000 Plus/4000/4500; Logitech ScanMan/ScanMan Plus; Marstek Mars Scanners.

CAT

BAQ3120 **CAT Color Converter** **$159.95**
BAQ3121 **CAT Hand ScanAdapter LPT** **$139.95**
IBM PC XT, AT or compatible; VGA or SuperVGA graphics adapter; 640K RAM Memory with hard drive; PC-DOS or MS-DOS 3.1 or higher; supported hand scanner.

Computer Aided Design And Drafting Made Simple And Fast... CAD Isn't Slow And Agonizing Anymore.

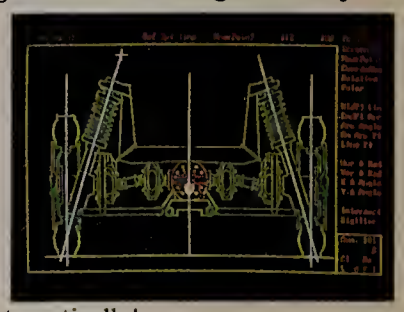
REVIEWER'S NOTEBOOK: *CAD is classically associated with drudgery. Slow, repetitive tasks. Hundreds of calculations and days of work just to create an office layout, furniture arrangement, landscape design, chart or schedule. Forget all that. The advent of one particular program, TurboCAD, has made the process sleek and simple — while building all the power inside. This full-featured drawing package is ideal for designers, engineers, artists, architects, managers, drafters, contractors, students and facility planners. Includes over 250 professionally designed drawing symbols and runs 5 TIMES FASTER than previous versions. We found that TurboCAD has all the features of products in the $2,000 to $3,000 range, and goes beyond with streamlined features that you won't find in any of them. Redraws at lightning speed and allows large drawings, regardless of available RAM, thanks to its powerful caching capabilities.*

Packed with drawing features, built for speed and easy enough for first-time CAD users.

TurboCAD is ready to go, giving you a massive on-screen drafting area. You'll feel right at home with the clean, organized layout and unobtrusive toolboxes. The on-screen tutorial is a must even if you're an experienced CAD user, guiding you through the simple steps to professional drawings. It's also a great display of TurboCAD's blistering speed and underlying power. Then you take a stab at it, working from the pull-down menus to draw lines, circles and any other imaginable geometric shape in seconds.

Once the object is drawn, it can be easily moved, mirrored, rotated or scaled. Use the grid and 18 snap modes to give you as much precision as you need. Zoom and pan instantly around your drawing to focus on the details. You can draw using up to 128 layers, with 256 different line thicknesses, choose from a selection of line and arrow types, use your choice of several included text fonts and perform powerful automatic and associative dimensioning.

Quickly draw perfect rectangles, polygons, ellipses and grids. Use the convenient rubber-banding feature for instant sizing, choose from 3 different cursor types or switch to TurboCAD's orthogonal mode (for added speed). You may also use the swift windowing to view different parts of your drawing. Copying drawings, or selected parts of them, is fast and easy. You can even use linear, array or radial options when copying for maximum image flexibility — without redrawing or retouching. Create your own symbol library for any project, designed to your specific needs. You can even have TurboCAD create a bill of materials for you — automatically!



TurboCAD's Power Is Unmatched...

There's a scientific calculator on-board if you need it, and the powerful macro language boosts your drawing and design productivity. This product is great as a standalone system, but has the ability to seamlessly integrate with many other specialized design packages. TurboCAD comes complete with DXF, ASCII and HPGL interfaces and is compatible with virtually all micro, mainframe and desktop publishing systems.

One more interesting note on TurboCAD's power: it will actually generate the program code for any drawing in BASICA or TurboPascal.

TurboCAD

BAQ3123 **TurboCAD** Release 2 ..... **$95.00**
IBM compatible, 512K, hard drive, graphics card.

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Coral Gables, Florida 33134

Logitech Introduces Revolutionary, New Imaging Technology. Scans TWICE The Area Of A Flatbed Scanner!

Seamlessly Assembles Multiple Scans Into Large Single Images. Outperforms Flatbed Scanners.

When we first introduced the ScanMan 256 Grayscale hand scanner last year, it met with a roar of enthusiasm. We published the results of our testing — unbelievably sharp scans, with crisp, rich detail and 256 levels of gray. Scanning photos, illustrations — and text — was instantly taken to a new level. In head to head testing, we found the Logitech ScanMan 256 to be more versatile, faster and capable of producing large crystal-clear images. The 256 levels of gray add more depth and realism to all your scanned images.

Logitech had created the ultimate hand scanner, the hottest new product of the year.

But when you work with Logitech, you come to understand that they never sit still. While the ScanMan 256 was sweeping the industry (*PC Magazine's* "Editor's Choice," *InfoWorld's* 1991 "Product of the Year," *PC Computing's* "Most Valuable Product of 1991"), they were at work designing an enhancement that would catapult it to another level entirely — a completely new category of scanners. The innovation: Virtual Page Scanning. The Technology: the Logitech Auto-stitching feature. It automatically "stiches" 2, 3, — even 4 scans together (so it can handle TWICE the area of an 8.5 by 11 flatbed scanner!). No other scanner we've ever seen can automatically merge scans into one completely seamless image. We scanned dozens of photos, large illustrations, 11″×17″ posters — each one was perfectly seamed. The ScanMan 256 smooths and de-skews the stitch, while evening the tones across the scans for remarkable images. Scan left to right, top to bottom — any way you like, the powerful ScanMan 256 software takes care of the rest.

The ScanMan 256 is constructed with the highest-quality materials. Of course it features the same "red-beam" technology that produces 7 times more light than conventional technologies, so more information is captured by the scanner, producing professional-quality scans in seconds.

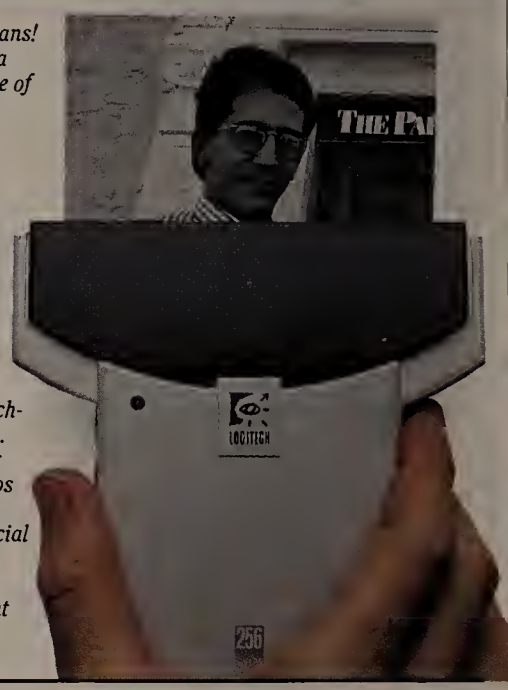
Scan large photos or illustrations — up to 16 inches wide by 22 inches long — the largest scanning-area possible for any desktop scanner. It's fast and easy to use, with the superior engineering and design that goes into every Logitech device. The ScanMan 256 is the smart choice in scanning, replacing the bulky flatbeds, delivering unequalled depth, sharpness and clarity. There's really no reason to even consider any other scanner.

In addition to the ScanMan 256, you get a copy of the FotoTouch Image Editing System, which acts as the host application for the ScanMan 256. Scanned images are automatically transfered directly to FotoTouch for immediate editing, with your choice of great new tools and effects. You'll perform advanced, 256 gray scale editing and allows you to print your images with amazing results on any dot-matrix and laser printers as well as Linotronic typesetters and other professional equipment.

As scanning text becomes more important in business, ScanMan 256 provides Perceive, one of the industry's highest-rated OCR software. The 256 grayscale support means text of any size, with any background color or pattern will be captured with precise accuracy. Perceive allows fast, easy capture of text at virtually any size — it's heavy duty OCR!

LOGITECH

BAQ2594 **ScanMan 256/Perceive** **$279.00**
Call for requirements.



Amazing Scans! Scan an area twice the size of even flatbed scanners!

Includes FREE FotoTouch image retouching software. Modify your digital photos with a wide array of special effects and specialized enhancement tools.

Instant Digital Snapshots!

Introducing The Incredible New Logitech FotoMan...

REVIEWER'S NOTEBOOK: *What is it? In short, it's a portable, digital camera — for your computer. FotoMan takes great pictures with amazing clarity and 256 grayscale richness — then allows you to instantly download them to your PC. It includes a slew of image editing tools that open a world of creative opportunity, and is compatible with virtually all desktop publishing programs. The applications for this new technology are enormous. Insurance and real estate professionals are using it to expidite claims and transmit photographs of neighborhoods and homes. Manufacturers use FotoMan to quickly catalog products and parts, while law enforcement officials are using it to photograph suspects, crime scenes and evidence — without the time and expense of film, processing and prints. Digital images are instantly captured and merged into documents, or stored as a permenant record. Up to 32 images can be shot and stored on the FotoMan's RAM chip, then transfered via serial port to FotoTouch — or previewed on your screen.*

There are hundreds of practical uses for this new product, but we found FotoMan was a lot of fun. Fast and easy, it comes with an automatic flash, one-button operation and a field of focus from three feet to infinity. Includes FotoTouch for image editing, including 256 grayscale editing.

One of the hottest new ideas in computing: the digital photograph — taken by a small, portable and easy to use camera that allows instant transfer to your computer — without a digitizing board or any other hardware.

In the past, getting a photograph into your PC meant using a traditional film method. The film would first be processed into either slides or prints then scanned or stripped into your document. Now, just snap a photo of a new employee, for example, and send it directly to the corporate database. Once you've got your shot on-screen, the FotoTouch software allows you to easily make modifications. Then save your image in either TIFF, CCIT, BMP, PCX or EPS format. There's no film, no developing and no waiting!

Real Estate professionals can send pictures of homes to prospective buyers, editing out undesirable objects like garbage cans. Or images can be put together — like different shots of landscaping to create a custom layout. FotoMan and FotoTouch are like having a complete darkroom in your PC. The possiblities are endless.

Us FotoMan images for multimedia and presentations. Produce personalized stationery, letters, invitations and anything else where you want to add real-life images to your computer documents.

It portable! FotoMan packs all its power in a rugged unit that's small, lightweight and battery-operated, so you can take pictures anywhere.

Take pictures indoors and outdoors — Fotoman includes a built-in flash for indoor use and a neutral density filter for perfect use outdoors, too.

LOGITECH

BAQ2592 **FotoMan** **$799.00**
Call for requirements.

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Mon.-Fri. 8AM-10PM, Sat. 8:30 AM-8:00PM & Sun. 11AM-5PM (EST).
Or, use our 24-hour fax line: (305) 444-5010.

1-800-888-4437

Page Layout, Design And Typesetting — It's Fast, Easy And Fun With Publish-It! Version 2.0

REVIEWER'S NOTEBOOK: *New Publish-It! 2.0 requires inspiration only — no desktop publishing experience is necessary to create great looking printed pages the first time out. Sleek, swift layout tools help you create pro-quality advertisements, brochures, reports, school assignments and more in just minutes. Publish-It! 2.0 also contains over 85 "Design Ideas," professionally prepared document layouts that you simply fill-in your information and print! You can use these time-saving formats as is, or modify them in any way you like. Add graphics, charts and tables, insert graphic images, designs and illustrations — from the library of 180 graphics included in the package. You also get 30 ultra-high resolution clip-art illustrations, along with 8 fully scalable fonts in 17 styles — from 6 point, up to 72 point type. Add texture and shading, with 36 fill patterns, wrap text around any object or shape, auto-hyphenation, simple graphics importing. Control the look of text with a host of sleek typesetting features. There's full HP SoftFont support and downloadable PostScript support. Extraordinarily easy and fully WYSIWYG. Text changes, additions and revisions are done in seconds. For those of us who want incredible pages, but don't want to spend days learning a page layout program, Publish-It! 2.0 is the perfect solution. You'll get your first pages pumped out in about half an hour...*

Advanced drivers for impressive output on both dot-matrix and laser printers.

Today's desktop publishing programs have evolved into studio-quality products, full of sophisticated capabilities and specialized tools. Professionals have replaced the traditional graphics tools — T-squares, rulers, x-acto knives and outside typesetting — with these products. But learning DTP software has been tough. Publish-It! 2.0 contains all the desktop publishing tools, typesetting and graphics capabilities you need for clean, professional page layout — plus 85 ready-to-use document layouts for business, home and school use. Just add your text and print!

Graphics From Scratch.

If you want to start from scratch, Publish-It! Version 2.0 is the fastest, easiest product we've seen to get from blank page to finished documents. Thanks to the convenient GEM interface, everything is done from pull-down menus, icons, scroll bars and dialog boxes. And, of course, you get full WYSIWYG display as you work.

In page layout and design, flexibility is the key. Publish-It! enhances your creativity with unmatched flexibility and simplicity. Place text, graphics and illustrations anywhere on the page with a couple of mouse clicks or keystrokes. Reposition, overlap, resize text and columns easily. This flexibility allows you to easily experiment with your layout. Choose from six standard page sizes, print portrait or landscape with premium-quality output capabilities, and improve resolution on 120×144, 9-pin: 180×180, 24-pin, and 150×150 and 300×300 lasers.

Everything You Need Is Included.

Publish-It! Version 2.0 includes a variety of built-in fonts in a wide range of sizes and special effects. You get thousands of different combinations to choose from — and each type style can be reversed for dramatic impact. Sizes from 7 point to 72 point are available and allow access to subscript and superscript characters as well as italics and underlined. Publish-It! 2.0 also supports the entire Bitstream desktop publishing font collection.

Everything you need is here, including a word processor, so everything you write can take advantage of the Publish-It! 2.0 suite of desktop publishing features. Add headers and footers, search and replace, cut/copy/paste, tabs, line and paragraph indenting, decimal tabs, centering text alignment and justification. Import documents directly from WordPerfect, Microsoft Word, WordStar, and others — with all attributes intact.

The sample layouts are professionally designed — just add your text and headline and you've got an instant document. All layouts are completely customizable. If you'd prefer narrower columns, just select from the menu bar; Publish-It! 2.0 handles all of the hyphenation and rewrapping automatically.

Mixing text and graphics won high marks for ease of use, and compatibility with draw and paint programs was exceptionally high, including PC Paintbrush, Lotus 1-2-3, CorelDRAW!... (TIFF and EPS) and many others. Once you've imported a graphic, you have full reign to crop it, modify it, size it any way you like. Of course, Publish-It! 2.0 includes a complete toolbox of built-in graphics tools to draw lines, boxes, circles, ellipses, polygons, and add your choice of dozens of fill patterns.

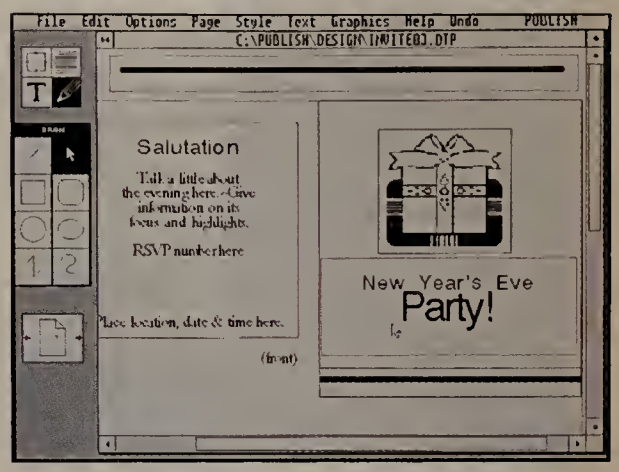
Special Typesetting Functions.

If you're serious about how your documents look, Publish-It! 2.0 gives you the ability to easily change the letter and word spacing (known as "kerning"), as well as the line and paragraph spacing (known as "leading"). You'll also love the Multiple-Size Screen View feature, allowing you to instantly view, edit and lay out pages at actual size, 200%, 75% and 50%.

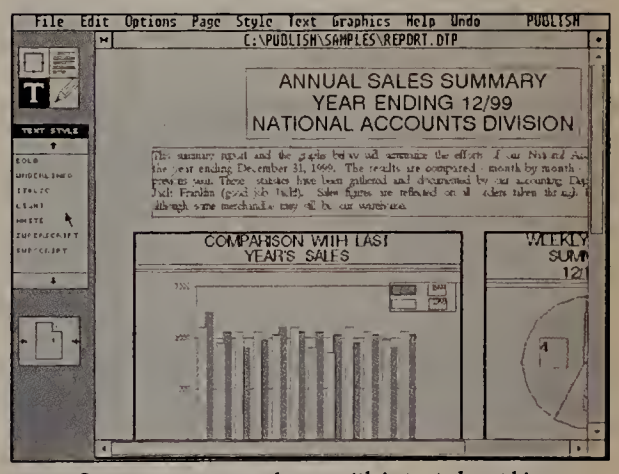
Special Time-Saver Features.

- **On-screen Rulers**, linked to your pointer, let you know exactly where you are on your page.
- **Selectable Page Guides** help you quickly place page elements on your page. Use the "Snap-To" feature to instantly create uniformly-sized columns and position them on your page.
- **The Precision Placement Feature** lets you easily place page elements to within 1/100th of an inch of your desired position.
- **Built-In Quick Keys** allow you to access frequently-used functions with one keystroke.
- **Automatic Page Numbering** inserts correctly positioned page numbers into your document — as you print.
- **Automatic Hyphenation** places hyphens into your text to fit your column width. Hyphens are automatically adjusted whenever you resize your column width or edit your text.
- **Left and Right Master Pages** help you quickly create magazine style documents.
- **Style Sheets** allow you to "recycle" your favorite page layouts and reuse them in other documents.
- **Paragraph Tagging** allows you to assign a "tag" or name to each paragraph style used throughout your document, for easy identification and modification.
- **UNDO Function:** Change your mind and you can change your document back to the way it was before your last input.
- **TIFF & SPLASH! Support:** Import uncompressed gray-scale TIFF files, and graphics created with Splash!.
- **Import Popular Text Formats:** You can import text directly from WordPerfect 5.1, Microsoft Word and WordStar 5.
- **Encapsulated PostScript Graphics:** Import EPS images and rotate them in 90 degree increments.

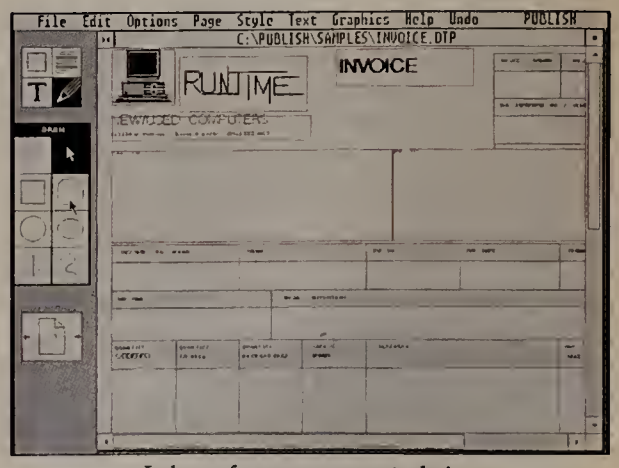
Looks Great On Screen...



Invitations, coupons, reports and resumes — they're all so easy with Publish-It! 2.0



Create company newsletters with imported graphics from Lotus 1-2-3!



In-house forms are so easy to design.

PUBLISH-IT! VERSION 2.0

BAQ3130 **Publish-It! 2.0** Dual **$199.95**
IBM PC, Tandy and compatibles; 512K; two floppy drives or a hard drive; DOS 3.0 or higher; mouse is recommended; 640K is required for use with Hercules, EGA or VGA displays. Runs with the Digital GEM software.

International Orders: 305-443-8212 24-Hour Fax Line: 305-444-5010 **FREE FEDERAL EXPRESS SHIPPING**

Circle 259 on reader service card

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Coral Gables, Florida 33134

Prices Pulverized On Quality Hayes Modems!

...Now There's No Reason To Settle For Anything Less Than The Best!

REVIEWER'S NOTEBOOK: *Hayes modems are legendary for their superior design, engineering, materials and of course, their reliable performance. The vision of Dennis Hayes back in the early 80's has established his company as the leader in PC communications hardware. But there are two misconceptions here. First, everyone thinks that since Hayes is state-of-the art, that it's more expensive. Not true. Second, everyone also thinks that Hayes makes hardware only. Again, not true. Hayes brings you premium product performance at the same price you'll pay for an off-brand modem. They also produce award-winning communications software products that exploit the power of their modems like no other software really can. We're taking a look at the classic OPTIMA 96 and Pocket 2400 modems (the best in the business), along with Hayes Smartcom Exec and Smartcom III software.*

OPTIMA 96.

An industry icon. The incredible Hayes Smartmodem OPTIMA 96. Blistering 9600 bps, V.32 speed, perfect for connections to information services, bulletin boards, corporate host computers and more. Automatically finds and selects the highest speed and best combination of error-control and data compression each time you connect to another modem. You get the cleanest, most efficient connections with a Hayes. That's not a misconception.

The OPTIMA 96 also contains a very important feature known as "Data Compression", allowing it to exchange data at four times its 9600 speed, producing file transfers at the incredible speed of 38,400 bps over regular telephone lines. Hayes set the standard in modem communications — they know what they're doing. It protects your data with the most extensive set of error-control technologies ever introduced, giving you flexibility and peace of mind.

The OPTIMA 96 provides backward compatibility with earlier error control protocols such as MNP; supports speeds ranging from 300 bps to 9600 bps to talk with almost any modem ever sold. The advanced Hayes AutoSync technology eliminates the need for costly synchronous interface cards (beware of that hidden cost when purchasing an off-brand modem!). The OPTIMA uses your asynchronous port, and the AutoSync software, to create a synchronous connection with another PC or a mainframe. All this for the same price as other modems, making the Hayes Smartcom OPTIMA 96 an incredible value from TigerSoftware. You know that you really want the reliability and features of a Hayes.

And when you crack open the OPTIMA 96 box, you'll notice that there's a free gift inside: Smartcom EZ Communications Software. A smash-hit in stores for $49, Smartcom EZ is a great starter set for the communications novice. Instantly allows access to the wonderful world of connectivity. The world of on-line information is growing at a staggering rate, opening up educational and financial opportunities. Simple steps put you in touch with on-line services, bulletin boards and other personal computers with a modem — with big savings on memberships.

More free goodies? How about special offers and discounts on fax delivery services from a variety of major services, giving you the ability to send faxes from your computer without buying a separate fax/modem. You can also get a free data communications library — tips and techniques compiled from the industry's leading computer publications. You'll learn about calling on-line services, playing interactive games (a hot new trend), finding useful databases, downloading free software and much more. Put the top-rated modem on your desktop: the Hayes Smartcom OPTIMA 96.

The Hayes Pocket 2400 Modem.

Tiny little thing... just 2" by 3" (and less than an inch thick), the perfect modem for laptops. Smaller than a deck of cards, the Pocket 2400 contains all the design graces and solid engineering that goes into every Hayes modem. This itsy-bitsy 2400/1200/300 bps communicator comes with everything you need to get underway immediately: includes FREE Smartcom EZ software, telephone/computer cables, carrying case and ironclad two year warranty. The Pocket 2400 needs no batteries — drawing its power requirements directly from the phone line.

A great on-the-road modem, allows you to access valuable information from on-line services for reports, papers and presentations. Get up-to-the-second information on travel planning to obtain the lowest air fares, hotel and rental car rates. Why buy just any modem when you can have a Hayes?

Smartcom Exec Communications Software.

Hayes wrote the book on PC communications technology, so it's only natural that they write the best software product to go with their fine line of modems. Smartcom Exec combines simple, straight forward operation with remarkable power and flexibility. Winner of *PC Magazine's* Editor's Choice, Micro Decisions' *Gold Award and Computer Reseller News'* Buyer's Choice, Smartcom Exec is the hottest value in communications software. Everything is here: the most popular terminal emulations and file transfer protocols, an on-line text editor, a handy phone book database (that automatically stores calling information), a powerful (yet simple to use) scripting language and more. All with sleek point-and-click operation.

Smartcom Exec makes complex communications scenarios easy. You'll quickly be writing your own programs to automate repetitive tasks like unattended operation and automatic log-ons. And when it comes to network support, *PC Week* says that "Smartcom Exec has the best LAN support of any software we tested." Perfect for users of any level.

Smartcom III Communications Software.

The ideal business communications software. Supports modem sharing on a LAN and offers a vast array of popular terminal emulations, CCITT X.32 (Dial-up X.25) multi-session support, error control file transfer protocols, a full-featured text editor, powerful SCOPE scripting language, file scrambling and advanced compression technology and more. Perfect for LAN environments, Smartcom III supports the sharing of either a single modem or multiple modems on popular asynchronous communications servers from Novell, 3Com, Network Products and J&L. There's also support for network printers.

Smartcom III Program Interface.

Menus

- Easy-to-use menu interface organizes program operations and simplifies user control.
- "Short-cut" keys allows quick selection of desired options with a single keystroke.
- Typing ahead bypasses menus for increased speed.

Tables

- Tables are used to list items, such as file directories and Connection lists.
- Items may be selected from a table by typing or selecting its name.

Setting Screens

- Setting Screens provide options for adjusting the way Smartcom III works with the user's computer or the host system.
- Program Settings options include: General Settings, Printer Settings, Editor Settings, and Editor Key Assignments.
- Commonly used settings are included as defaults to reduce the need to configure more complex parameter settings.

Activity and Connection Settings

- Activity settings help manage the multi-session capabilities of Smartcom III and correspond to what is done once on-line operations begin; i.e., terminal emulation, file transfer protocol, etc.
- Connection Settings relate to the process of getting on-line; i.e., phone number, data rate, etc.
- Stores phone numbers and other information (COM Port, Connection Type, Transmission Speed, Character Format, Terminal Emulation, Start Connection, Protocol Settings, File Transfer Protocol, Flow-Control Protocol, and Autotype Protocol) to make call placement fast and simple.

HAYES

BAQ3127	**Smartmodem OPTIMA 96**	**$495.00**
BAQ3128	**Pocket 2400**	**$175.00**
BAQ3125	**Smartcom Exec Communications Software**	**$79.00**
BAQ3126	**Smartcom III Communications Software**	**$129.00**

Call for system requirements on individual modem/software configurations.

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Full-Motion, Interactive Sherlock Holmes Mysteries!

"Sherlock Holmes, Consulting Detective" Over 90 Minutes Of Adventure On One CD!

REVIEWER'S NOTEBOOK: *An absolute must for electronic game fans, Sherlock afficianados and deductive-reasoners! Sherlock Holmes, Consulting Detective is the only game we've ever seen that features FULL MOTION VIDEO. You actually interact with the on-screen characters, embarking on three different cases with the super-sleuth himself, Watson and an intriguing collection of victims, suspects, generals, beautiful women and jealous sisters. It's a fascinating new technology. The production-quality sound is compatible with most sound boards (including the ThunderBoard, available through Tiger, call for details). The cases are well written adaptations of classics licensed from the Sir Arthur Conan Doyle estate. Your interaction changes the course of the action, your interrogations lead to valuable information and the evidence you uncover leads to clues needed to help Scotland Yard nab the villainous murderer. Members of the Tiger staff first saw this disc at the CD-ROM Expo in San Jose last summer. We knew then that this one was destined to become a classic. If you've got a CD-ROM reader, you'll love it. This one multimedia full-motion blockbuster is worth it!*

3 EXCITING MYSTERIES!

FULL MOTION VIDEO!

For the first time ever, over 90 minutes of full-motion video brings Sherlock Holmes to life. This revolutionary CD gaming experience lets you match wits with the super-sleuth himself. Guide Sherlock and Watson through the streets of London to interrogate suspects and solve three intriguing murder mysteries!

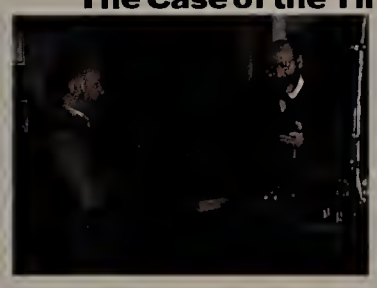
The Case of the Mummy's Curse.

Four men found dead. Some say the murderer is a 4000 year old Mummy exhumed during an archeological dig in Katebet, Egypt. Were their murders simply coincidental or were these men cursed from the crypt?

The Case of the Mystified Murderess.

Two sisters. One beautiful. The other quiet and plain. A single man. Tall, handsome... and dead. Who did it? Was it jealousy or was it greed? Could the murder be tied to a rash of burglaries causing panic in the upper-class communities of London?

The Case of the Tin Soldier.



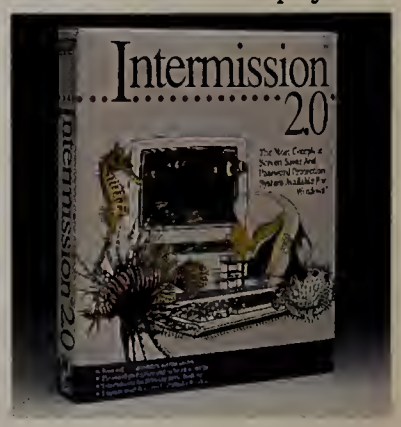
Waterloo, 1815. Power and Passion. He was an officer but not a gentleman. Now, years later, the retired General has been murdered, a jewel stolen, and a king's ransom waits to be claimed. Who killed General Armstead and why?

Also Available From TigerSoftware: INTERMISSION 2.0.

Screen saving taken to the limit! Packed with 56 animated screen-saving sequences along with password protection, network security and even a section for DOS screen blanking without Windows!

So while you're protecting your monitor from the damaging effects of phosphor screen burn-in, you'll have some pretty exciting entertainment. There are screens here that we've never seen before. We loved the Ant Farm, Dancing Pig and Battling Mixers! You can even combine any of the 56 individual effects together for great animated sessions, slide shows — style presentations or let Intermission display them at random for you.

Features: ***NetPass*** System Administrator network-wide password. ***Intermission for DOS,*** support for DOS even without Windows. ***SysMonitor*** system CPU activity monitor.



ICOM

BAQ3132	**Sherlock Holmes, Consulting Detective CD-ROM**	**$59.95**
BAQ3131	**Intermission**	**$39.95**

Sherlock Holmes: *requires CD-ROM reader.* ***Intermission:*** *requires Microsoft Windows 3.0 or later.*

Extend WordPerfect's Screen Display.

REVIEWER'S NOTEBOOK: *WordPerfect Users will love this utility. It actually displays text in compressed format on your screen so you can actually see well beyond the limitations of 25 rows and 80 columns. No more scrolling left and right while editing a proportionately spaced document. Up to 25 screen sizes to choose from, up to 128 characters per line (incredible!) — and screen sizes can be changed on demand. Displays font attributes such as bold, underline and actual font size. Simple to use, a great productivity enhancer. This is a product you've probably been waiting for, but didn't know existed.*

Easy to install, you're up and running in under 5 minutes. ScreenExtender is fully integrated with WordPerfect and supports all the familiar editing commands you use now. **NETWORK EDITION AVAILABLE.**

By just using two definable hot-keys, you'll reach all the powerful functionality that ScreenExtender has to offer. It's that easy to use. Set rows to 25, 34, 43, 49 or 58 and columns can be set to 80, 90, 102, 120 or 128. That's some heavy real estate.

There are a few other goodies that ScreenExtender gives you, like the ability to choose from six display fonts: two Roman fonts, two Gothic fonts and two sans serif fonts. Find the ones that you like to work with the most. Want more? Okay, how about the ability to customize your color display by selecting 16 screen colors from a palette of 64. Up to 16 color sets can be created, named and saved for instant retrieval. And ScreenExtender supports all major graphics adapters: SuperVGA (800 x 600), Gas Plasma (640 x 400), VGA, EGA, CGA and Hercules.

Here are some of the comments the press has made about this incredible product.

"...*(ScreenExtender 2.0)* does exactly what its name implies.
— *PC Sources*

"*ScreenExtender 2.0* provides high resolution display and unequalled clarity while editing in WordPerfect." ..."While *ScreenExtender* has always been extremely easy to install and use, the context-sensitive help facility provides detailed explanation of what options are available at any given time and allows the novice user to quickly learn the program without referring to the instruction manual.
— *Computer Monthly*

"ScreenExtender dramatically increases productivity by eliminating the need to scroll the screen left and right, while editing a proportional-spaced document.
— *ABA Journal*

"Overall, WordPerfect with ScreenExtender was the package of choice for the law office power user."
— *Legal Assistant Today*

"This remarkable add-in TSR program displays text in compressed format, thereby allowing your screen to be extended well beyond the normal twenty-five rows and eighty columns."
— *Los Angeles Computer Society*

"ScreenExtender works just as it is promoted!"
— *Los Angeles Computer Society*

"Life became much simpler when I discovered a program named ScreenExtender. It does some remarkable things to the way text appears on a WordPerfect screen.
— *Bob Nadler, The Suburbanite*

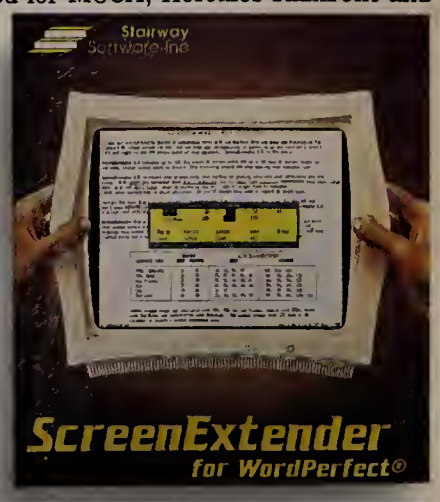
"...it cuts down tremendously on the time and frustration factor.
— *The Washington Lawyer*

"In two months of testing, I have found ScreenExtender's 'anti-scroll' feature to be a real convenience and productivity booster."..."ScreenExtender greatly improves the readability of laptop screens in three ways."
— *The Perfect Lawyer*

"...*ScreenExtender Version 2.0* is much more than a convenience — it's a necessity."
— *The Computer Corner, KELR Radio Station*

System Requirements.

ScreenExtender for WordPerfect 5.0/5.1 works on all IBM PCs, XTs and compatibles equipped with SVGA, VGA, EGA, CGA, Gas Plasma or Hercules graphics adapters and DOS 2.0 or later. Special support is provided for MCGA, Hercules RamFont and Hercules In-Color video cards. Maximum memory required is about 50K, depending on graphics adapter and features used. Memory is required when WordPerfect is running.



SCREENEXTENDER

BAQ3124A	**ScreenExtender** 5¼" or 3½"	**$89.00**
BAQ3124B	**Network 3 PAK** 5¼" or 3½"	**$129.00**
BAQ3124C	**Network 5 PAK** Dual	**$229.00**
BAQ3124D	**Network 10 PAK** Dual	**$329.00**
BAQ3124E	**Network 20 PAK** Dual	**$629.00**

**All network packs contain 3 user manuals.*

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The Only Complete, Professional Imaging Utility.

24-Bit Color, Grayscale And Black & White Support — With Conversions!

REVIEWER'S NOTEBOOK: *Image processing has always been shrouded in mystery. You had to learn cryptic terms, calculate gamma and contrast levels and then somehow be able to navigate inconsistent file formats (Image files have serious standardization problems — it's the number one complaint about image processing software). HALO Desktop Imager is the only product we've ever seen that automatically converts any file format to any other for studio-quality images every time. Then you can use your scanned, captured or painted images in your word processor or desktop publisher with seamless integration. You get all the classic image enhancing and processing tools, plus a host of innovative features that are unavailable anywhere else. Includes support for TIFF, PCX, IMG, HALO CUT, GIF, TGA and BMP formats. There's also color, tone and contrast enhancement and correction, smooth and sharpen, posterization, etched metal, embossing, dozens more...*

Feast your eyes on true, 24-bit color WITHOUT A 24-BIT Display Card! HALO Desktop Imager's proprietary M/Color technology gives you explosive, 24-bit color or 8-bit grayscale images with an EGA, VGA or SuperVGA device. We love the ability to easily create high-quality, wall-size posters with any printer! Simple to use, the best results we achieved in our 9-product benchmark image testing...

A Great Feature — File Conversions.

Although HALO Desktop Imager provided us with plenty to talk about, one feature in particular made life surprisingly simple during our testing: the ability to convert images cleanly and quickly between formats. As we've discovered, not all packages are able to do that. In fact, very few actually convert with quality results the formats listed on their boxes. There's always some problem. Not with HALO Desktop Imager. Perfect conversions every time — we applaud this product for its attention to that detail...

Do You Have a Naked Printer?

If you run Windows and have a printer, your printer is naked without the HALO Desktop Imager. This is the program that fills a huge gap in your capabilities. It is a complete imaging utility, ideal for creating, altering and printing pictures. Downright simple to use — just select from the menus to add professional effects to any image. The unmatched printing capabilities produce crisp, clean images at any size — wall size posters are effortless.

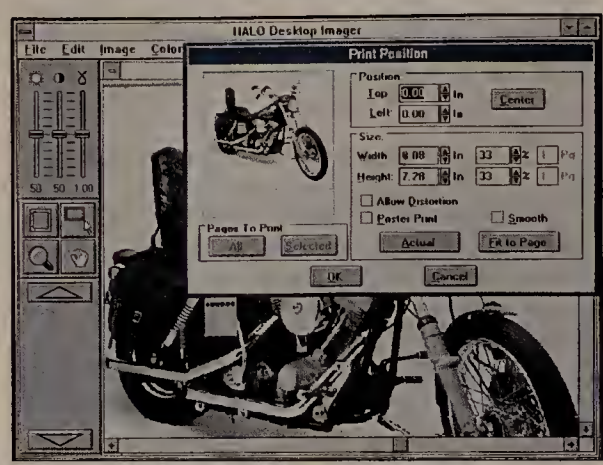
A unique "test strip" feature saves time, paper and resources by allowing you to build contact sheets of miniaturized images with all the variants and

Do it all — Scan, File Conversion, Special Effects and much more!

combinations or image enhancement to see an exact preview of your work, either on the screen or printed on one sheet. Tune your image to match the exact qualities of your printer. Find the best calibration for your printer and use it every time to get the finest quality prints. You can even select from over 100 halftone combinations and patterns to ensure great images.

Turn Images Into Photographs.

Less than perfect photos can become unforgettable images using the tools found in HALO Desktop



Print any image any size, including large multi-page posters!

Imager. Correct bad contrast, washed-out colors and dull tones. Smooth ragged edges and sharpen details that appear out of focus on the original. Add special effects, scale your image to any size, crop, flip, flop and undo any step you're not happy with. You get a complete selection of specialized filters that add effects and remove defects. It's no wonder that HALO Desktop Imager is the choice of professionals. Now you can have the same quality studio tools and output with no learning curve and in an easy-to-use package. If you work with color, grayscale or black & white, there are more useful tools here than any other package we've tested, seen or heard of.

Works with All Your Software.

HALO Desktop Imager is a wonderful utility that has been designed specifically to ease the drudgery of working with images. Years of imaging expertise at Media Cybernetics have been used to fine tune this product not only to do sophisticated image processing, but also to make it an ideal companion to all your desktop publishing draw program and word processing software (CorelDraw, Ami-Pro, Word for Windows, PageMaker, MS Publisher.) These packages are just not complete without HALO Desktop Imager.

Screen Capture, at Your Fingertips.

HALO Desktop Imager provides a screen capture feature that allows you to capture the screen or portions from any Windows program. Now you can quickly capture the output from any program and save it into one of the many file formats. Capture a window, an area, or the entire screen quickly and at the touch of a user definable "hot-key."

Your Imaging Worries Are Over.

Overcome many of the typical problems facing dealing with images:

- Save valuable disk space by saving images out in one of the many file compression formats supported.
- Work in 24-bit images with a VGA or SuperVGA through the amazing M/Color technology. You can even have multiple 24-bit images on your VGA at the same time — all looking fantastic.
- Get great image quality from your laser or dot matrix printer. Generally, printer halftones are truly lacking. With over 100 halftoning options, HALO Desktop Imager offers solutions for all printers. Now get the best image quality right at your desktop.
- Convert all your images in one operation. Don't worry, use the batch conversion feature to convert files in groups. And the software conversion is fast. The program can even convert Color images to grayscale, black and white or even optimized palette or M/Colored 8 bit color files.
- Crop your images or add matte margins from a variety of options. Resize your image using bilinear scaling or pixel replication — get the results you want.
- Made a mistake? Don't worry, HALO Desktop Imager provides up to three levels of undo for each image open.
- Own a scanner? HALO Desktop Imager directly supports most color and grayscale scanners. Just startup the program, turn your scanner on, and let HALO Desktop Imager take over. Never have your images looked so good!
- Ease of use and really fast. The HALO Desktop Imager is quick, easy to use and definitely fast. This program was designed to take full advantage of Windows, but has been optimized for speed and to limit your key and mouse strokes. For example, need to cut a color portion of an image and paste it in a grayscale image? Just use "Copy" and "Paste" — the imager does the conversion invisibly.
- Don't know about imaging? In addition to online help, a complete online tutorial and introduction to imaging helps get you up to speed fast!

Presentation Slides Instantly.

Stand out presentations become a snap with HALO Desktop Imager. Just load your image (from clipboard, directly from scanner, file, or screen capture) enhance it, color reduce it (for fixed palette computer presentations), or use the fantastic halftoning features to make outstanding handouts. No longer does every image reproduced have to go to the graphics department or out of house for preparation and printing.

For Sophisticated Color User, As Well.

If you really want to get into fancy color manipulations, the complete color map editor allows you to work in R, G, B or C, M, Y color spaces and perform very sophisticated color corrections and special effects with a touch of your mouse. You can even save color maps for complete calibration control of your printers and scanners.

More on Postering.

A really neat feature is the postering capability. Take any image and blow it up to any size poster, including wall-sized, using your standard printer. Just choose the poster print option, select the size of the poster and hit print. Worried about jagged edges? HALO Desktop Imager uses sophisticated image processing techniques, instead of standard pixel replication to make perfect posters, to make wonder posters.

If you have any images on your computer, then the HALO Desktop Imager is an indispensable utility.

HALO IMAGER

BAQ3129 **HALO Imager** 5¼" & 3½" **$129.00**
IBM compatible, 512k, hard drive, graphics card.

Circle 259 on reader service card

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Increase Your Disk Capacity (On The Fly) By Up To 300%...

This unique product, unlike conventional file compression software, employs sophisticated "on-the-fly" compression algorithms to expand the storage capacity of your drives (hard disk or floppy) by up to 300% — and in many cases more!

SuperStor is simple to install and is 100 percent guaranteed for safety. You don't have to buy any new hardware, fiddle with jumpers, switches, hardware interrupts or even open your computer! Just slip in the diskette and you'll instantly notice significant increases in capacity and speed.

SuperStor is perfect for all applications, including your word processor, spreadsheet, database, graphics and CAD/CAM systems. Specialized applications with highly compressible data can achieve an increase in capacity as much as 8 times — 800%. It supports DOS 3.2 and up including DOS 5.0, Dr. DOS, and Windows 3.0, and allows DOS 3.2 and 3.3 users to easily break the annoying 32 megabyte limitation.

Even with all this high-tech efficiency going on around you, SuperStor does not change the way you work. All compression and decompression occurs without your help. SuperStor's automatic operation eliminates the need to learn special commands or use specially created logic disks. You don't even have to hit one keystroke for this amazing product to work its magic. Just use your computer and applications like you always have.

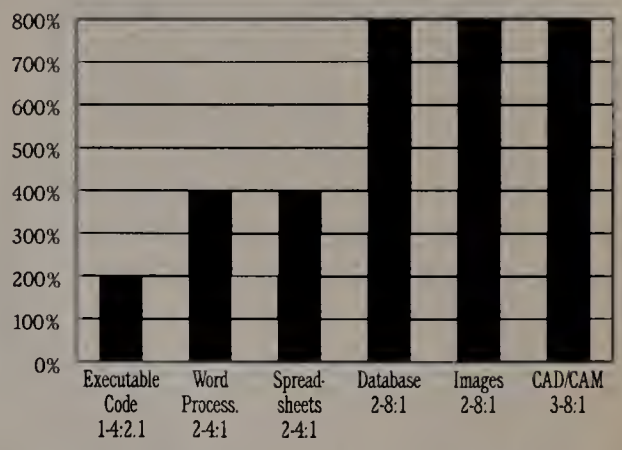
Your Word Processor And Spreadsheet Will Run As Fast As Ever!

SuperStor is the fastest data compression product on the market today, resulting in no measurable loss in your system's overall performance. All of your applications will run just as fast as they ever have. In fact, in some cases SuperStor will actually increase your system speed! SuperStor even includes a caching system that adds additional speed. How's that for power?

A little exploration into the easy-to-understand manual can reap some powerful rewards. For example, with just a couple of keystrokes you can create your own compression configuration. Compress your entire disk, or any portion of it, to maximize ease of use, compression efficiency and overall system performance. In just a few minutes, you can become an advanced SuperStor user.

How Much Space Can I Really Save?

The exact amount of compression you'll achieve depends on the data in the files you store on your computer. Files which use a limited number of characters or contain repeated sequences of characters will compress better than those containing purely random data. While this is true for many compression programs, SuperStor's advanced technology increases storage capacity even more. And SuperStor is the only compression system we've seen that compresses executable code. In addition to compressing the data in your files, SuperStor's ingenious file management techniques saves space on your disk by reducing the number of reserved byte units. Normally, these savings will amount to 4 to 8 times less space on your disk, regardless of the data in the file.



Reduce Time & Cost of Backing Up.

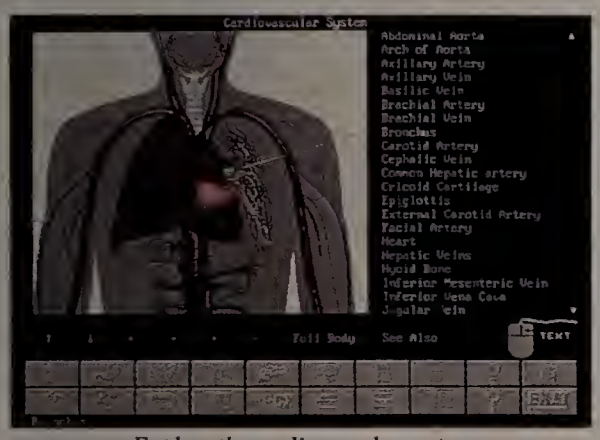
Since your data is now occupying less disk space, you'll find that backups now require less media. In fact, an average savings of 50% on the number of floppies is normal for SuperStor. And, of course, your backups are much faster. In addition, you can write on floppies in compressed mode for backups or, for exchange with other systems, in regular DOS format.

SUPERSTOR

BAQ3865 **SuperStor** 5¼" & 3½" **$119.95**
Requires 512K memory.

A Guided Tour of the Human Body.

The human body. A perfect machine. It grows and develops, protects and heals itself and is designed to last for decades. Now the wonder of the body is combined with the power of the PC to produce a fascinating journey into its structure and functions. You'll see detailed, full-color graphics of the entire human body and a comprehensive database of facts, descriptions and explanations. Do you know the exact function of the hypothalamus? How about the kidneys? How do bruises heal? How does the brain work, and where is your duodenum? Experience a world of knowledge and beauty that provides profound insight into life itself. It's called BODYWORKS, and it could be the most interesting software program you'll ever own — perfect for students, artists and hobbyists.

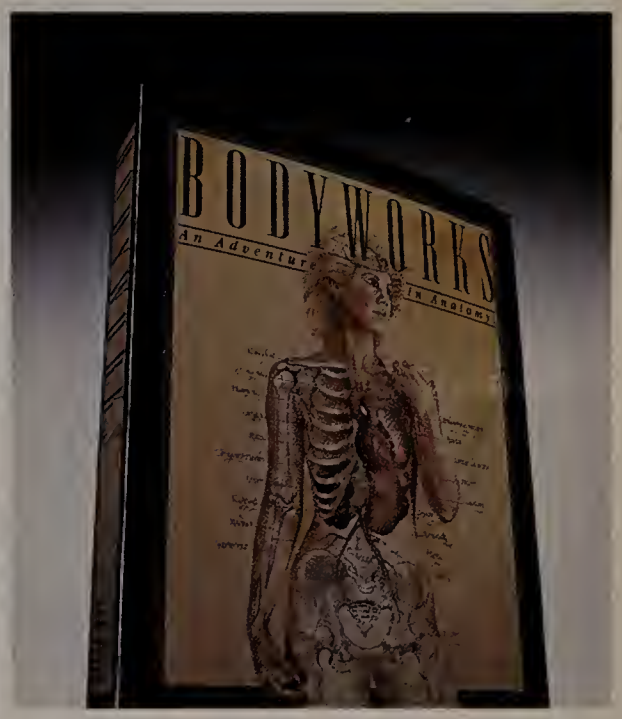


Explore the cardiovascular system...

You begin by exploring the major body systems: select the skeletal system and view the bones and how they work, the joints, mechanics of the ball and socket. Select the muscular system and see the tremendously resilient human muscle, capable of developing enormous strength. Discover how the delicate muscles in the eye allow instant focusing and movement, far beyond the capabilities of even the most sophisticated camera. Move to the nervous system, and see how the signals sent to the brain can detect even the slightest touch to the skin. Learn about how your nervous system allows the brain to instruct the body to perform complex movements — like walking! Then select the digestive system — the body's systematic breaking down of food. Its incredible ability to process and extract nutrients. From the mouth to the intestines, BODYWORKS shows you in great detail how your body nourishes itself, how it accumulates fatty tissue (and how it uses fat).

...Or discover the workings of the brain.

There are complete sections on lymphatic, endocrine and cardiovascular systems. Explore the most amazing four-square-inches of tissue man has ever seen — the human heart. How it feeds the body with a constant supply of necessary chemicals to sustain life. You'll learn how the human heart can be damaged, and exactly what happens when someone suffers a heart attack. When your child asks "Where do babies come from?" you can simply select the section on the human reproductive system for a clinical explanation of the process.



You'll see all of the organs and tissues of the body, each described in exhaustive detail. Colorful graphic screens also provide information on sports injuries, first-aid advice on illness, insect and animal bites, along with other topics. Just click or select any organ or system for instant retrieval of thousands of facts.

BODYWORKS

BAQ4101-5 **BODYWORKS** 5¼" **$79.95**
BAQ4101-3 **BODYWORKS** 3½" **$79.95**

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Circle 259 on reader service card

20-MHz 386SX NOTEBOOKS

MORE POWER TO YOU

WITH BIGGER HARD DISKS AND BETTER BATTERY POWER MANAGEMENT, THESE 23 ULTRAPORTABLES MAKE IT EASIER THAN EVER TO ENJOY DESKTOP-CLASS COMPUTING WHEREVER YOU LIKE.

PHOTOGRAPHS BY STAN MUSELIK

MICHAEL GOODWIN

Is it a blessing or a curse? Anytime, anyplace, you can boot up and start computing. With bigger hard disks, brighter displays, longer-lasting batteries, and improved power management, the latest crop of 386SX notebooks is changing the definition of the once-simple concept called work. Now you can work in an airplane, out on the deck, or while carpooling to the office, and even if you never stray from a power outlet, your aching muscles

will welcome the low 7- to 10-pound traveling weights. No longer are you limited to simple word processing chores when you're on the move: These 20-MHz systems have the authority to recalculate complex spreadsheets or run *Windows*-based presentations.

The best and the brightest of these miniature laptops do a lot of things very well, from serving up crisp screen images to delivering top performance. Unlike desktops—which let you choose from a variety of displays, keyboards, and hard disks—notebooks make it difficult to swap components, so what you see is what you get. In this review of 23 notebooks, we've found one Best Buy that covers all the bases: Texas Instruments' TravelMate 3000 WinSX.

Sleepy Time With the SL

Engineers need to meet three challenges before notebooks can offer full desktop power: Create a lightweight, high-quality color display that doesn't consume much power; provide desktop expansion without adding pounds; and extend battery life so a notebook can outlast a cross-country flight.

Soon you'll see affordable, low-power, color notebooks with sharp active-matrix displays, and many of the notebooks reviewed here offer optional 80MB hard disks, compared to the 40MB to 60MB limits of the notebooks we reviewed last November. By midyear you can expect to see notebooks shipping with PCMCIA (Personal Computer Memory Card Interna-

Buying Smart: A Notebook Primer

No matter how fast *Windows* runs on your new 20-MHz SX notebook or how easy it is to read the bright, crisp display, a day of schlepping the thing around will convince you that there's no such thing as too light or too small. But other issues also play a part in your buying decision.

PORTABILITY

All these systems fit easily into a briefcase, but some will build up your biceps (and wear down your patience) a lot faster. There's no reason to consider anything heavier than 10 pounds traveling weight—that includes the PC, the battery, the AC charger and power cable, and the modem. One notebook—the Librex 386SX/20—weighs only 6.6 pounds in this configuration, and when you're running to catch a plane, those 3 pounds can really make a difference.

BATTERY

If you're never more than 6 feet from a power plug, this is a nonissue, but for most of us, it's crucial. Even if you generally watch the in-flight movie on business trips, you'll appreciate being able to check a spreadsheet in the middle of a meeting or manage a modem session when the power plug and phone line are on opposite sides of the room.

The size and design of the power cell affect battery life substantially, but that's not the whole story. Depending on the system and your work habits, power-saving options will give you somewhere between 30 minutes and 6 hours of extra computing time. Hard disk and backlighting timeouts are standard; all the systems here have them. In addition, when you have to walk away from the notebook, all SL (and many SX) notebooks let you reduce power consumption to near zero via a *suspend* or *sleep* mode that slows or stops the CPU.

Depending on the notebook, you can put it to sleep by pressing a special button, or you can set it to drop off automatically when you haven't touched a key for a specified period. When the notebook is awakened (by a key press, a timer, or a modem call), operations resume from the point you left off. Look for a suspend/resume button, so you can stop the clock the second you quit working, rather than waiting for the timeout. And if you use *Windows*, make sure the notebook can suspend itself without upsetting that program.

We test battery life two ways: First we benchmark the length of a battery session under full usage, a worst-case scenario with power-saving features like hard disk timeout *disabled*. Then we run a best-case benchmark, with all power-saving features enabled, and include several sleep periods. Three hours of battery life is a reasonable minimum under full usage, and you should demand at least 5 hours with power saving. Reality should fall somewhere in between.

Toshiba's T2200SX turned in the best full-usage power score: a little over 3 hours. As you might expect, Zenith Data Systems' MastersPort 386SL walked away with the honors for power saving–enabled battery life: 8 hours, 22 minutes.

PERFORMANCE

All things being equal, the faster your processor runs, the quicker you'll be done with your work—and 20 MHz is plenty fast. In calculating the overall perfor-

tional Association) slots—an interface standard for credit card–size peripherals such as pop-in fax-modems, RAM upgrades, and ROM-based applications (for more information about PCMCIA, see *Industry Outlook*).

Battery life is another story. Even with the latest nickel-hydride batteries, these SX systems rarely deliver more than 2½ hours of battery life in full use (with power-saving options disabled for top functionality). Fortunately, you can make your notebook sessions last longer right now, thanks to recent gains in power management technology. Power-saving options range from disks and screens that timeout when not in use to a suspend/resume button that puts the unit into temporary "sleep" mode.

With power management, however, comes slower performance and annoying delays as the machine wakes up from hard disk timeouts. Also, the sleep mode of many of these units can't be used under *Windows* without crashing the system. That's why Intel's SL chip is big news—it lets you put your notebook into an ultra-low-power sleep mode and suspend *Windows* safely.

Only one SL—the ZDS MastersPort 386SL—was shipping in time to be reviewed here, and its power management lives up to the SL's promise. Its full-usage battery life is actually on the low side (a bit over 2 hours), but with all power-saving features in use, testing ran an amazing 8 hours, 22 minutes. Under "typical" usage, we estimate

mance rating, we weight the *1-2-3* tests the highest, but if you run a lot of disk-intensive applications, keep a close eye on the *dBASE* test scores. All tests were done with power-saving features turned off, so if you're planning on marathon 5- to 6-hour sessions away from a power plug, expect slower performance. Zenith Data Systems' MastersPort 386SL grabbed first place, thanks to its built-in memory cache controller and 64K of cache memory.

EXPANDABILITY

Many applications benefit from a large RAM disk or lots of expanded memory, so we consider 4MB RAM capacity the minimum, especially for *Windows* users. All but one of the notebooks reviewed in this roundup provide at least 60MB of storage, but *Windows* hounds will want one of the 80MB machines. Notebooks that offer an internal modem and an optional expansion chassis or docking station are preferable. Compaq and Kris tie for top honors.

SCREEN

All these systems have backlit or sidelit displays. The bigger the screen, the better—but watch out for wide screens that distort graphics and make text hard to read. Nor is size everything: Make sure the characters are sharp and crisp, with good contrast. The more gray shades your notebook can display, the better color graphics appear. Look for at least 16. Acer, Librex, and Toshiba have the best displays in the roundup.

KEYBOARD

The closer your notebook keyboard adheres to the standard 101-key model, the better. Emulated keys (which, for example, force you to hold down a special key to turn a cursor key into <Page Down>) slow typing and increase errors. Look for dedicated cursor keys in the familiar inverted T and dedicated page and function keys. Standard layout for <Alt> and <Ctrl> makes life easier, too. AT&T's Safari NSX/20 and Zenith Data Systems' MastersPort 386SL share the keyboard championship.

PRICE

We base our cost comparisons on *street price*. For each system, our research staff calls dealers in cities across the country and gets a quote in the standard *PC World* configuration: 4MB RAM, 40MB to 60MB hard disk, 1.44MB internal floppy drive, 2400-baud internal modem, and DOS. Results are averaged. The lowball boss in the roundup is Blackship's $2244 386SX/20 NB.

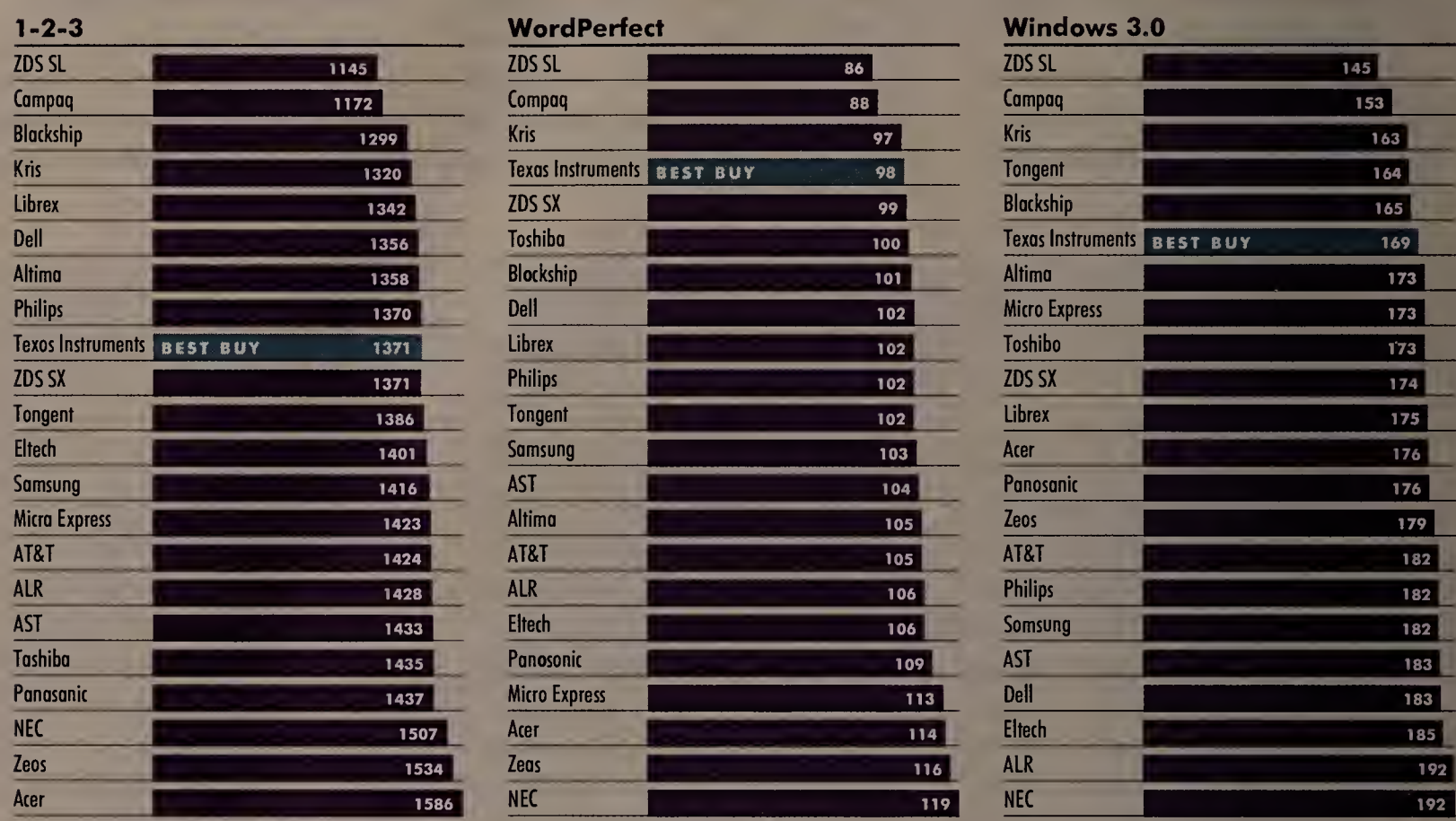
SERVICE AND SUPPORT

The key service issue on notebooks is a quick turnaround, plus data recovery—there's little to repair. We evaluate central support by calling each vendor three times and scoring responses for quality and courteousness, with extra credit for long hours, fax lines, and BBS's. We rate dealer support by tallying the requirements vendors impose on dealers for training, inventory, and dedicated support staff; we give extra credit for vendors who operate their own stores. Best service and support: Zenith Data Systems, with Librex and Dell in hot pursuit.

PC WORLD TEST REPORT

Zenith's Fast SL Slips Past the SX Speedsters

Thanks to its fast SL processor, Zenith Data Systems' MastersPort 386SL aces the competition. Compaq's LTE runs a strong number two, and our Best Buy from Texas Instruments ranks close to the top.



you'll be able to go 5 or 6 hours before you start hunting for the nearest plug. Another benefit of the SL chip—its built-in memory cache controller—shows its worth in the MastersPort too: This system is *blazingly* fast.

One more piece of good news. The prices on these notebooks are moving in one direction only: down. So use these reviews to choose your best system, then go out and cut a great deal—and that means more power to *you.*

Michael Goodwin is an associate editor and TJ Byers a contributing editor for PC World.

For more information about all products in this article, circle reader service no. 909.

Staying Alive: How to Keep Your Battery Humming

TJ Byers

When you're away from an AC outlet, a dead battery can transform your expensive notebook into a royal pain in the shoulder. Fortunately, taking a few simple precautions can keep it from turning into a pricey paperweight halfway between Los Angeles and New York.

The easiest solution is to bring along extra charged batteries. When the old battery dies, simply slide in a fresh one and keep on working. If your notebook permits swapping without turning off the power, the switch may take less than 30 seconds. Each battery adds a couple of pounds and costs from $75 to $150.

You can charge extra batteries while the notebook is plugged into an AC outlet, but a faster solution is to pay $50 to $229 for an external quick-charger. Chargers bring batteries up to full power much faster than a notebook's internal charger.

Time in seconds.

Methodology
We tested all the computers with 4MB RAM except the Acer, AST, Micro Express, Panasonic, Tangent, and Zeos, which we tested with 5MB RAM. The systems' hard disks ranged from 20MB to 60MB. We used the vendor's version of DOS or Microsoft DOS 5.0.

1-2-3
We load the application, followed by three separate worksheets (arithmetic, financial, and scientific). We perform various changes and run recalcs on each. Finally we use the *MAPS* add-in from Management Advisory Services of Seattle to run a number of financial forecasts.

WordPerfect
We reformat three *WordPerfect 5.1* documents that vary in size from 5K to 55K. The files are text with some boldface and underlining; one document includes a TIFF image.

Windows 3.0
Timing begins and ends at the DOS prompt. We launch *Windows* along with a macro that loads *Microsoft Excel* with a financial worksheet and initiates a recalc. Then the macro loads Lotus's *Ami Pro* along with a 50K document that contains a 500K TIFF image. Finally, the macro launches *Micrografx Designer*, opens a drawing, displays it on screen, and exits to DOS.

dBASE IV
With the caching feature enabled, we complete an unindexed search for a single record in a 100,000-record parts table. Then we index the table, run the transaction processing module, and post 600 records.

Paradox
Starting with an orders table, we compare each record with an available stock table. The application finds the current price for the items and inserts the resulting record into an invoice table.

Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

dBASE IV

ZDS SL		766
Compaq		799
Texas Instruments	BEST BUY	874
Dell		898
Toshiba		899
ZDS SX		902
Tangent		914
Kris		917
AST		926
Samsung		926
ALR		927
Philips		940
Librex		954
Blackship		959
Eltech		980
Altima		983
AT&T		991
Zeos		1003
Panasonic		1021
NEC		1039
Acer		1040
Micro Express		1042

Paradox

Compaq		715
ZDS SL		728
Blackship		757
Kris		763
Toshiba		763
ZDS SX		766
Texas Instruments	BEST BUY	774
Dell		777
Philips		787
ALR		788
Altima		788
Samsung		792
Tangent		799
Librex		805
Eltech		816
AST		821
AT&T		838
Micro Express		845
Acer		847
Panasonic		855
NEC		907
Zeos		964

Most notebooks still use nickel-cadmium batteries, and the way you treat them makes a big difference in how long they last. For instance, batteries that are repeatedly used for a short period of time, like half an hour, and then recharged develop a "memory" problem. The battery starts to think it's out of juice when that familiar half hour is up, even though it may have many hours of power left. One reason the new nickel-hydride batteries are so swell is, they don't have this problem.

You can prevent (or cure) the memory effect by making sure your battery is fully discharged before you recharge it. If you're not in a hurry, simply turn the notebook on, defeat all the power-saving features like screen blanking, and let it run down overnight. A faster alternative is the BATTKILL batch file. To create it, type the following three lines from the DOS prompt.

```
COPY CON BATTKILL.BAT
DIR > XXX
BATTKILL
```

To save the batch file, press <Ctrl>-Z<Enter>. When you run the file (by typing BATTKILL and pressing <Enter>), it runs a directory over and over, saving it to disk file XXX, until the battery is totally dead—usually an hour or two. Then you can recharge the battery overnight.

Like everything else in the entropic universe, a battery has a limited life span. As it nears its end, the amount of power it can hold drops off gradually. This usually happens after 500 to 1000 cycles—about two years of normal use. Batteries that are not fully charged before use, are charged frequently with a quick-charger, or go unused for extended periods don't live quite as long. So be sure to discharge and charge stored batteries every three to six months, and keep them high and dry.

AcerAnyWare 1120NX

PROS: Small, big screen, crisp display

CONS: Heavy, slow, short battery life, odd keyboard

The first thing you'll notice about Acer's midpriced ($3623) AnyWare is its big, beautiful screen: a full 9½ inches diagonal and graced with sharp letters and excellent contrast. And while the twin batteries bring its traveling weight close to 10 pounds, its profile is very trim. Performance, however, is unimpressive across the board—and the low 5MB RAM limit should keep it that way. Battery scores are ho-hum: You get only a bit more than 2¼ hours in full-use mode. On the bright side, Acer's sleep function is guaranteed to work safely with *Windows*.

The keyboard may take some getting used to. The cursor keys are in a nonstandard layout, key travel is shallow and hard, and all the function keys and page keys are arrayed in two rows along the top. The AnyWare's dynamite screen may be enough to hook traveling presenters, but most users will want a faster, lighter notebook.

Flat screens don't get much better than this—a super display makes the AcerAnyWare a good choice for presentations.

Your fingers will appreciate the Venture's top-notch keyboard, and your eyes will enjoy its crisp, clear display.

ALR Venture 386SX/20

PROS: Great keyboard, good-looking display

CONS: Relatively heavy, awkward screen controls, no internal modem

There are two good reasons for giving ALR's $3262 Venture a close look: a sharp display with excellent contrast, and a well-designed keyboard. Performance is passable, but the 9.5-pound traveling weight is pretty high and the 2-hour battery life fairly low. Power-saving features will more than double that, but you can't suspend *Windows* safely.

The Venture's ergonomics could use some refinement: Brightness and contrast controls are awkward push-and-twist knobs, there's no indicator to tell you when the battery is fully charged, and the suspend/resume switch is a tiny stud on the back of the system. Some other quibbles: There's no internal modem option, and the service contract lacks a turnaround guarantee. The superb keyboard and display make this a good choice as a weekend carry-home, but frequent travelers may want a lighter notebook with better staying power.

Altima LSX

PROS: Light weight

CONS: Small screen, some controls hard to reach or operate

For $3183, Altima will sell you a handsome, reasonably fast notebook that, at a lean 8.3 pounds traveling weight, is a breeze to whisk through an airport. Battery power won't last much more than 2 hours during full-bore computing, but if you enable the LSX's complete set of power-saving features, you'll reach almost 5½ hours.

You can't suspend *Windows* safely, however. And don't count on the Altima to show off in front of clients or customers—the screen ties for smallest in the roundup. Ergonomics could be better too: Page control keys are emulated, brightness and contrast slides are unusually hard to operate, and every time you need to get to the AC power connector or the phone plug—which could be many times a day—you'll lose precious seconds opening the sticky rear-hatch cover. But if easy portability is important, the Altima makes good sense.

Light and airy at 8.3 pounds traveling weight, the LSX will keep cooking for over 5 hours with power saving turned on.

AST Premium Exec 386SX/20

PROS: Good battery life, excellent screen contrast, fine keyboard layout

CONS: Pricey, small screen, relatively heavy

The Premium Exec 386SX/20 is a fairly hefty 9-pound notebook with a fairly hefty $3566 price. But the Exec lets you work long and prosper away from the power plug, whether you're typing furiously on a report or dawdling over a spreadsheet. If you prefer the convenience of full-use mode, you'll get 2½ hours, and with the excellent power-saving features set to the max, you'll last 5½ hours. And whether you use the auto-sleep timeout or the manual suspend/resume function, you can suspend *Windows* safely—and wake it up with an incoming modem call.

The AST's screen ties for smallest in the roundup, but its sharp, black characters compensate—and the keyboard layout is almost perfect. Some details could be better: The brightness and contrast slides and the stubborn front latch drove us crazy. All told, however, decent speed, good battery life, and a crisp screen add up to a solid value.

If you plan on marathon sessions away from the power plug, you'll like the way the Exec can stretch your battery.

The Safari can help you survive the worst the business jungle can throw at you. You'll love the big, beautiful screen.

AT&T Safari NSX/20

PROS: Huge screen, terrific keyboard, long battery life

CONS: Expensive, thin screen characters

The Safari NSX/20 isn't cheap—but good things seldom are. For $4245 you get a screen that ties for biggest in the roundup, a "perfect" keyboard, a mouse, and twin batteries that will keep you working more than 3 hours with power saving disabled. The Safari's 8.5-pound traveling weight is more than reasonable, and the bright, 10-inch screen delivers a crisp, even image with an unusually wide viewing angle.

Neat touches include a handsome curved design, a set of eye-catching LCD icons just beneath the screen, and the ability to control speaker volume, inverse video, screen timeout, and so on from handy keys. The Safari is ideally suited for *Windows*, which AT&T preinstalls: S/R is guaranteed *Windows*-safe, and an optional 80MB drive provides more than enough room for even the most serious *Windows* devotee. If not for the Safari's high price, we'd surely be talking Best Buy.

Blackship 386SX/20 NB

PROS: Fast, very low price, elegant design, safe Windows S/R

CONS: Small screen, short battery life, no charge indicator, no modem option

Not every notebook buyer is fanatical about battery life. If you're not, this Blackship could well be your best deal. For an astonishingly low $2244, Blackship's elegant 386SX/20 NB is loaded with value—from hot performance to a light 8.6-pound traveling weight. The NB took fourth place for overall performance and came in third in the *1-2-3* and *Paradox* tests. You even get an auto-sleep function that's safe to use in *Windows*. And if elegant style matters to you, you'll go for the NB's good-looking, asymmetrical case and ball-shaped power switch.

The NB's battery life is quite short—1:50 with power-saving features defeated and only 3:16 with them enabled. The screen is on the small side, there's no support for an internal modem, and the keyboard has nonstandard cursor keys and emulated page keys. But if you crave burning speed and the lowest price in the roundup, you've found it.

Top speed and a rock-bottom price are always a winning combo, and the NB sweetens the deal with light weight.

FEATURES EVALUATION

Bright and Light

These featherweight SX/SL notebooks deliver power aplenty, with prices and traveling weights dropping by the month

● Yes
○ No
n/a = not applicable

	AcerAnyWare 1120NX	ALR Venture 386SX/20	Altima LSX	AST Premium Exec 386SX/20	AT&T Safari NSX/20	Blackship 386SX/20 NB	Compaq LTE 386s/20	Dell System 320N+ [1]	Eltech 3026E	Fora NBS 386S/20
Standard features										
Street price [2]	$3623	$3262 [3]	$3183	$3566	$4245	$2244	$4848	$3798	$2349	$2970
Windows included	○	○	○	○	●	○	○	○	●	○
Portability										
Traveling weight (pounds) [4]	9.6	9.5	8.3	9	8.5	8.6	9.5	8.3	8.2	7.4
Dimensions	8.5 x 11 x 2	12.2 x 8.6 x 2.1	11.1 x 8.6 x 2.2	11.5 x 9 x 2.3	12 x 9.9 x 1.8	11.7 x 8.5 x 2	11.1 x 8.8 x 2	11 x 8.5 x 2.0	11.6 x 8.7 x 2.3	8.6 x 11 x 2
Volume (cubic inches)	187	220	210	238	214	199	195	187	232	189
Battery										
Battery life (power saving on/off)	3:52/2:17	4:50/2:02	5:25/2:12	5:27/2:32	5:13/3:09	3:16/1:50	5:48/2:46	5:01/3:06	7:38/5:33	n/a [5]
Indicator shows full charge	●	○	●	●	●	○	●	●	●	●
Suspend/resume button	○	● [6]	○	● [7]	●	○	●	●	●	○
Safe Windows S/R or auto-sleep	●	○	○	●	●	●	●	○	●	○
Expandability										
RAM capacity	5MB	8MB	8MB	8MB	6MB	6MB	10MB	8MB	6MB	5MB
Largest hard disk option	60MB	80MB	60MB	80MB	80MB	60MB	84MB	80MB	60MB	40MB
Mouse/external keyboard port	○	●	●	●	●	●	●	●	●	●
Internal modem available	●	○	●	●	●	○	●	●	○	●
Expansion chassis available	●	○	● [10]	○	○	●	●	○	○	○
Keyboard										
Cursor keys in inverted T	○	●	●	●	●	○	○	●	○	●
Dedicated page control keys	●	●	○	●	●	○	○	●	○	○
Dedicated function keys	●	● [11]	● [11]	● [11]	●	● [11]	● [11]	●	● [11]	● [11]
Screen										
Size (square inches)	47	40	35	35	48	37	38	35	36	36
Shades of gray	32	32	32	32	32	32	16	32	32	16
Service and support										
Warranty (months)	12	12	12	12	12	12	12	12	12	12
On-site service available/under $100	○/○	●/●	○/○	●/○	○/○	○/○	○/○	●/●	●/●	○/○
Turnaround policy	1 week	○	48 hours	1 week	96 hours	48 hours	○	24 hours	1 week	1 week
Free unlimited support	●	●	●	●	○	●	●	●	○	●
Vendor support										
Central support/toll-free	●/●	●/○	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●
Daily support (hours)	11.5	11	10	11	9	10	12	15	9	10
Weekend support	○	○	○	●	○	○	○	●	○	○
BBS/fax	○/●	●/●	○/●	●/●	○/○	○/●	○/○	●/●	○/●	○/●
Vendor-to-dealer support										
Dedicated support staff required	○	○	○	○	○	no dealers	○	no dealers	○	●
Support staff training required	○	○	○	○	○	no dealers	○	no dealers	○	○
Dedicated support line for dealers	●	●	●	●	●	no dealers	●	no dealers	○	○
Service from any authorized dealer	○	○	○	○	○	no dealers	○	no dealers	●	○

[1] The Dell System 320N won a Best Buy in November 1991.
[2] Standard configuration includes 4MB RAM, 40MB to 60MB hard disk, 1.44MB internal floppy drive, 2400-baud modem, at least one parallel and one serial port, DOS.
[3] Includes pocket modem.
[4] Including battery, modem, AC charger, and cable.
[5] Could not complete tests.
[6] On rear.
[7] Closing screen activates sleep mode.
[8] On-off switch can be configured for suspend/resume.

	Kris Master	Librex 386SX/20	Micro Express 386 SX/20	NEC UltraLite SX/20	Panasonic CF-370H6	Philips Magnavox Metalis SX.20	Samsung NoteMaster 386S/20	Tangent 320N	TI TravelMate 3000 WinSX	Toshiba T2200SX	ZDS MastersPort 386SL	ZDS MastersPort 386SX	Zeos 80386SX-20
	$2610	$2914	$2513	$3521	$3742	$3899	$3087	$2615	$3084	$4441	$4478	$3732	$3395
	●	○	○	●	○	○	●	○	●	○	●	○	○
	9	6.6	9.1	10.4	8.1	9.3	9.4	7.7	7.4	7	8.4	8.7	9
	11 x 8.7 x 2.1	11.7 x 8.2 x 2	11.6 x 8.7 x 2.3	11.5 x 8.7 x 2.5	12.2 x 1.7 x 10	8.5 x 11 x 2	11 x 8.5 x 2.1	11.7 x 8.3 x 2	11 x 8.5 x 1.8	11.7 x 8.3 x 1.6	12.4 x 8.3 x 1.8	11 x 8.5 x 2	12.2 x 10 x 2
	198	192	232	250	207	187	196	193	168	155	185	187	244
	3:51/2:04	2:20/1:26	4:31/2:42	5:16/1:51	6:42/2:07	5:13/2:56	3:30/2:44	2:28/1:18	4:15/1:48	5:46/3:13	8:22/2:09	6:41/2:25	4:11/2:07
	●	●	●	●	●	●	●	●	●	●	●	●	●
	●	●[8]	○	●	●[8]	●	●[7]	○	●	●[8]	●[8]	●	○
	●	○	○	●	○	○	○	○	●	●	●	○	○
	16MB	4MB	5MB	10MB	5MB	8MB	8MB	5MB	6MB	10MB	8MB	4MB	5MB
	85MB	60MB	80MB	60MB	60MB	80MB	80MB	80MB	80MB	60MB	60MB	60MB	60MB
	●	○	●	○	●	●	●	●	●	●	●	○	○
	●	●	●	●	●	●	●	●	●	○[9]	●	●	●
	●	○	○	○	○	●	○	●	●	●	○	○	○
	●	●	○	●	●	●	○	●	●	●	●	●	●
	○	○	○	○	●	○	○	●	●	●	●	○	○
	●	●	●	●	●	●	●[11]	●	●[11]	●	●	●	●
	37	46	36	45	35	35	44	35	48	45	37	40	43
	16	16	16	16	16	32	64	32	32	16	32	16	32
	12	12	15	12	12	12	12	12	12	12	12	12	12
	●/●	○/○	○/○	●/●	○/○	○/○	●/●	○/○	●/●	○/○	●/●	●/●	○/○
	48 hours	24 hours	48 hours	5 days	○	72 hours	24 hours	48 hours	48 hours	48 hours	48 hours	48 hours	○
	●	●	●	●	●	○	●	●	●	●	●	●	●
	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	●/●	○/○	○/○	●/●
	10	12	9.5	10.5	9	13	8.5	10	9	10	n/a	n/a	24
	○	○	○	○	○	○	○	○	●	○	n/a	n/a	●
	○/●	●/●	○/●	●/●	●/○	●/●	●/●	●/●	●/●	●/○	●/○	●/○	●/●
	○	●	no dealers	●	○	○	○	no dealers	no dealers	○	●	●	no dealers
	○	●	no dealers	●	○	○	○	no dealers	no dealers	○	●	●	no dealers
	○	●	no dealers	●	●	●	●	no dealers	no dealers	○	●	●	no dealers
	○	●	no dealers	●	○	○	●	no dealers	no dealers	○	●	●	no dealers
									BEST BUY				

[9] Unavailable at press time.
[10] Third-party expansion chassis, sold by Altima, connects to parallel port.
[11] <F11> and <F12> are emulated.

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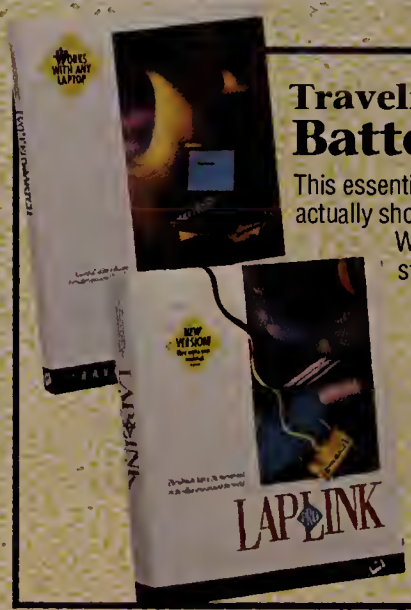

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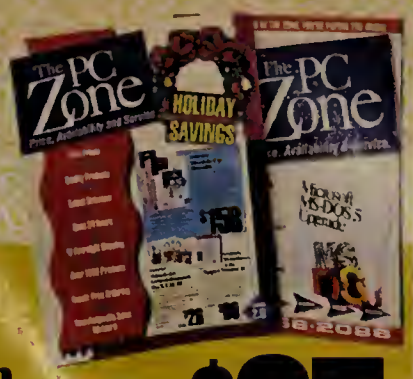

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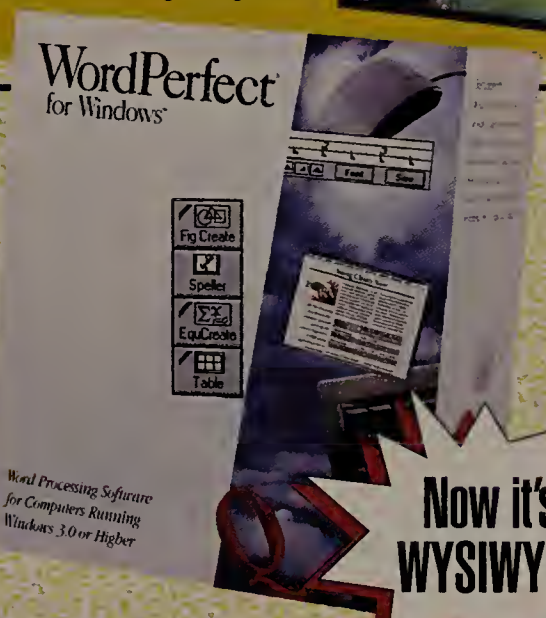

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Compaq LTE 386s/20

PROS: Very fast, 10MB RAM capacity, good battery life
CONS: Very expensive, heavy, awkward keyboard

Last November, the 386s/20 waltzed away with top speed honors. This time ZDS's MastersPort 386SL aces it out, but the second-place 386s/20 is still hot as a $2 pistol. With its top speed, *Windows*-safe S/R, and 10MB RAM ceiling, the LTE still makes a great *Windows* notebook. Unfortunately, some other things haven't changed either: The $4848 price is still painfully high, the screen is still relatively small, and the keyboard's L-shaped cursor pad defies intuition.

Despite a heavy 9.5-pound traveling weight, tight design makes the Compaq easy to carry, and its battery life (nearly 3 hours with power saving disabled) is another portability plus. Compaq offers a central tech support line, but most service and support is still handled by dealers, and there's no guaranteed turnaround policy. Still, if you have plenty of cash, the LTE could be your *Windows* dream machine.

Blazing speed and impressive battery life make the 386s/20 one of the best Windows road machines on the market.

Dell's 320N+ boasts primo portability and good battery life and performance. As usual, service and support are first-rate.

Dell System 320N+

PROS: Light, small, good keyboard
CONS: Pricey, small screen, inferior contrast

This dandy upgrade to Dell's Best Buy System 320N is almost as light (8.3 pounds traveling weight), just as tiny, and features the same solid performance and quality keyboard. What's new is a higher 8MB RAM ceiling and a new nickel-hydride battery that delivers over 3 hours of computing—5 hours with power saving. Unfortunately, the screen ties for smallest in the roundup, and contrast could be better. Also, the 320N+ lacks a reliable *Windows* S/R, and at $3798, it's expensive.

The Dell's three-star performance is par for the course, but if you run a lot of disk-intensive applications, note the fourth-place finish in the *dBASE* tests. This nicely designed unit boasts mouse *and* external keyboard connectors and a unique sliding rear-hatch cover. Dell's service and support are excellent, as always. So if you need easy portability matched with plenty of battery power, you can do a lot worse.

Eltech 3026E

PROS: Very low price, light, extraordinary battery life, Windows included
CONS: Small low-contrast screen, awkward front latch, uncomfortable keyboard

Eltech's dark-gray 3026E boasts one of the lowest prices in the roundup ($2349), an 8.2-pound traveling weight, and splendid battery life—a whopping 5½ hours with power saving defeated. But there's a catch: Not *all* the power-saving features are really disabled. You can't turn off the hard disk or backlighting timeouts, so unless you keep pounding the keys, you'll face delays while you wait for the disk to spin up. But if you choose to turn on all power-saving options, you can get over 7 hours of computing; and you can suspend *Windows* safely.

The Eltech's chassis is a bit large, but an inset screen hinge makes tray-table operation easy. On the downside, the screen is a bit dim, the front latch is hard to open, and the keyboard is nothing to write home about—or on. Still, the low price, long battery sessions, and light weight make this one of the best values around for the frequent flier.

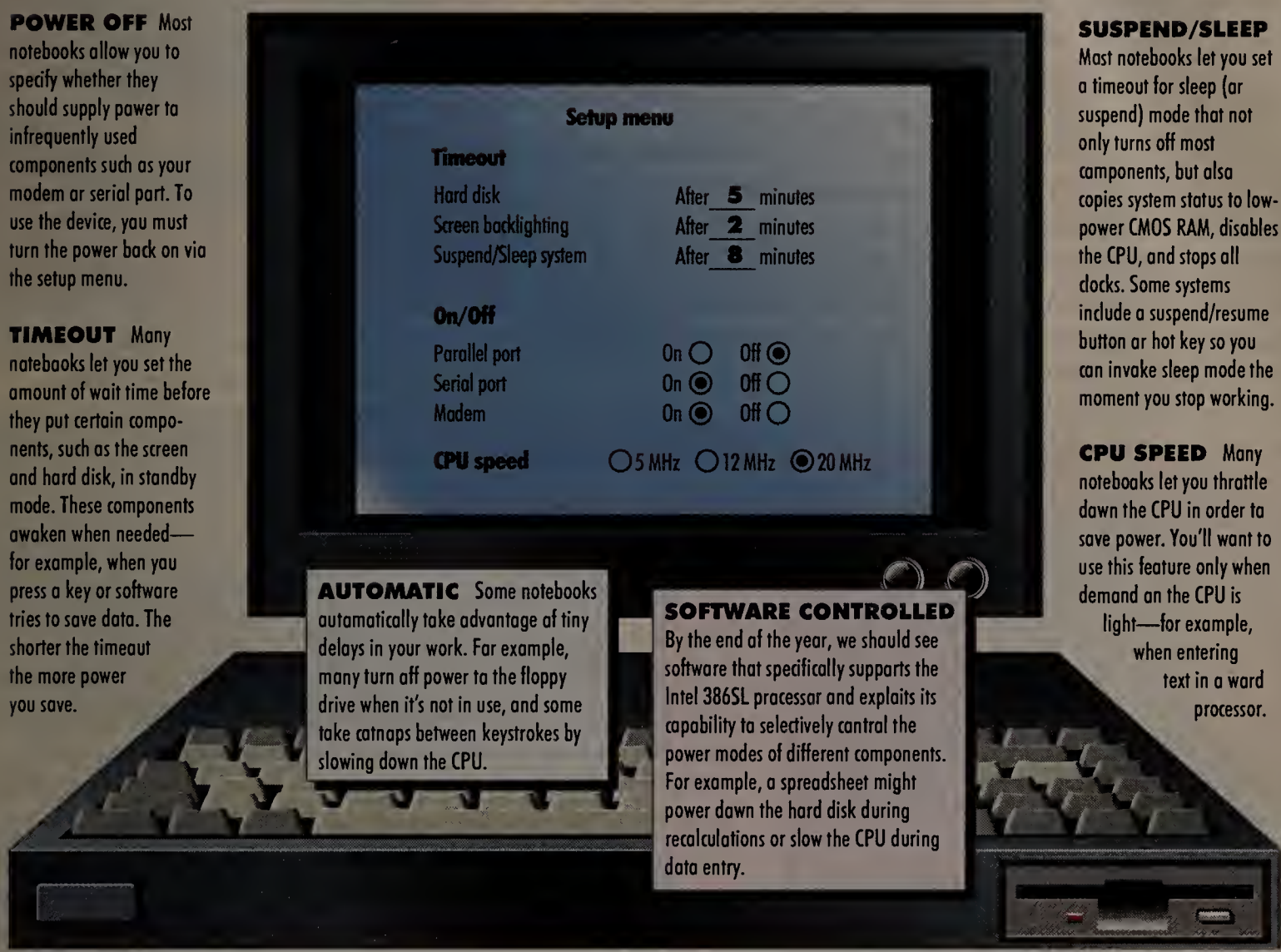
Start with a bedrock price, add a low traveling weight and blockbuster battery life, and you've got a winner.

Laptop Power-Saving Options

How can you work for 5 hours with a 3-hour battery? To maximize the useful time between charges, notebooks can dramatically reduce—and sometimes even eliminate—the power consumed by various system components.

POWER OFF Most notebooks allow you to specify whether they should supply power to infrequently used components such as your modem or serial port. To use the device, you must turn the power back on via the setup menu.

TIMEOUT Many notebooks let you set the amount of wait time before they put certain components, such as the screen and hard disk, in standby mode. These components awaken when needed—for example, when you press a key or software tries to save data. The shorter the timeout the more power you save.



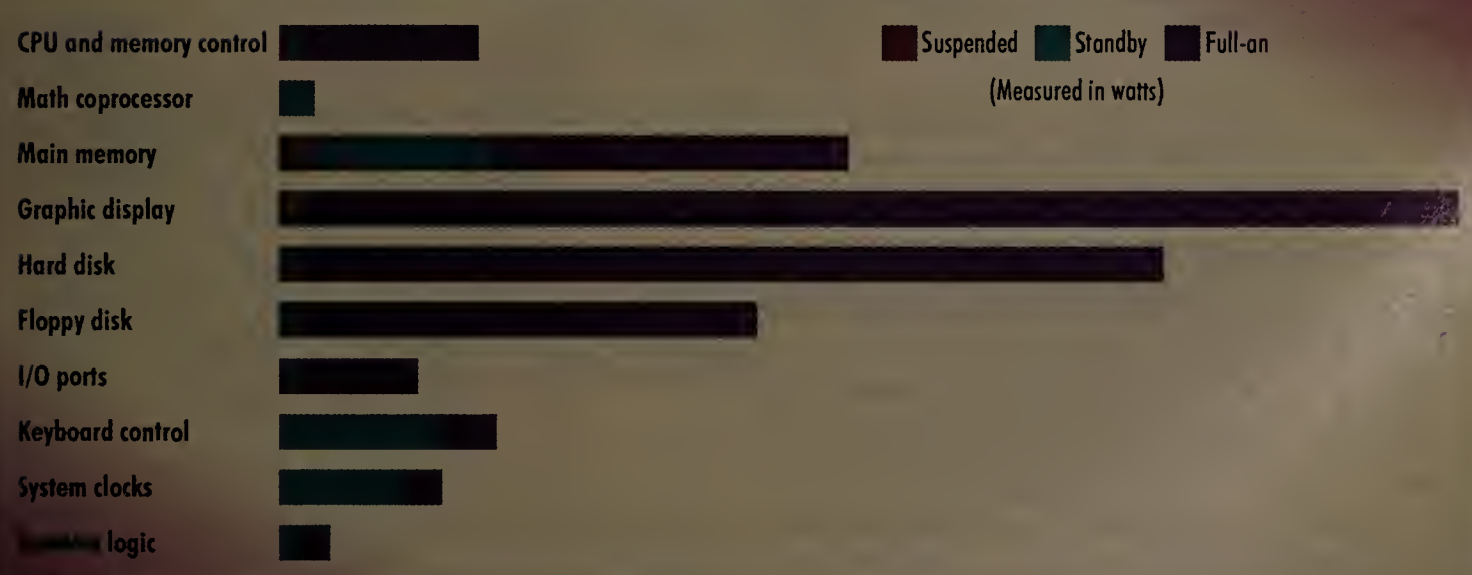
AUTOMATIC Some notebooks automatically take advantage of tiny delays in your work. For example, many turn off power to the floppy drive when it's not in use, and some take catnaps between keystrokes by slowing down the CPU.

SOFTWARE CONTROLLED By the end of the year, we should see software that specifically supports the Intel 386SL processor and exploits its capability to selectively control the power modes of different components. For example, a spreadsheet might power down the hard disk during recalculations or slow the CPU during data entry.

SUSPEND/SLEEP Most notebooks let you set a timeout for sleep (or suspend) mode that not only turns off most components, but also copies system status to low-power CMOS RAM, disables the CPU, and stops all clocks. Some systems include a suspend/resume button or hot key so you can invoke sleep mode the moment you stop working.

CPU SPEED Many notebooks let you throttle down the CPU in order to save power. You'll want to use this feature only when demand on the CPU is light—for example, when entering text in a word processor.

Relative Laptop Power Consumption in Different Modes



The power that notebook components consume, as well as the amount that standby and suspend modes can save, varies greatly. The best power-conservation designs control components individually rather than in groups.

Fora NBS 386S/20

PROS: Extremely light, quite small

CONS: Compatibility and reliability problems, small screen

This $2970 notebook is almost identical to the Altima—but the Fora is around $200 cheaper and has a lower, 5MB fast-RAM limit. It's also a bit smaller and lighter, mainly due to a different screen and a smaller 40MB drive. But these distinctions are moot compared with one huge difference: The Altima worked, and the Fora didn't.

We ended up looking at two Fora notebooks. The first system's hard drive would not read or write. The second unit rebooted when we tried to load *QEMM* and refused to boot consistently due to memory failure. Since Fora could not help us get either system running reliably before our testing window closed, we were unable to run performance or battery-life tests. As we went to press, Fora began shipping a 60MB unit that emulates the Altima more closely—and presumably works better than our test units. But we suggest you test it before you buy.

The 386S/20 is small, light, and reasonably priced—but neither of our two evaluation units worked reliably.

The Master debuts with impressive speed, decent traveling weight, a huge 16MB RAM limit, and a charming price tag.

Kris Master

PROS: Very fast, very low price, 16MB RAM limit

CONS: Small, hard-to-read screen

Kris is a newcomer to our reviews, but that doesn't stop the Kris Master from delivering a winner. The Master provides a strong third-place finish in performance and a fabulous 16MB fast-RAM capacity, all for a low $2610 street price. Despite its relatively short battery life (2:04 to 3:51), the 9-pound Master easily earns its 3½-star overall rating.

The Kris Master is thoughtfully designed—the screen pivots on a hinge that's inset a full 2 inches, making it easier to deploy in cramped environs. And you can adjust screen display variables by using special keys. Yet even with boldness turned all the way up, letters are hard to read—and the screen is fairly small. Moreover, <Page Up> and <Page Down> keys are emulated, and while key travel is fine, the keys themselves feel wobbly. Despite these minor trade-offs, the Kris Master is one of the best values in the roundup.

Librex 386SX/20

PROS: Lightest in roundup, beautiful screen

CONS: Very short battery life, 4MB RAM ceiling

If you plan to travel a lot with your notebook but don't need to compute *while* you're traveling, the $2914 Librex should suit you fine. This 6.6-pound featherweight (lightest in the review) gives you a large, sharp screen and solid performance, especially at *1-2-3*. But its 1:26 battery life (2:20 with power saving enabled) is strictly for stay-at-homes.

Service and support are very impressive. While there's no on-site service per se, for the first 100 days after you buy, Librex will provide a free exchange unit. All our calls to tech support were answered swiftly and accurately. *Windows* users may balk at the low 4MB RAM limit, and there are a few design flaws: The front latch is tough to open; and the brightness and contrast control wheels are set in the side of the screen, where they're easy to disturb. Still, this is a very good deal for anyone who rarely strays from a power outlet.

The featherweight Librex provides a big, sharp display and superb support, but don't expect to compute coast to coast.

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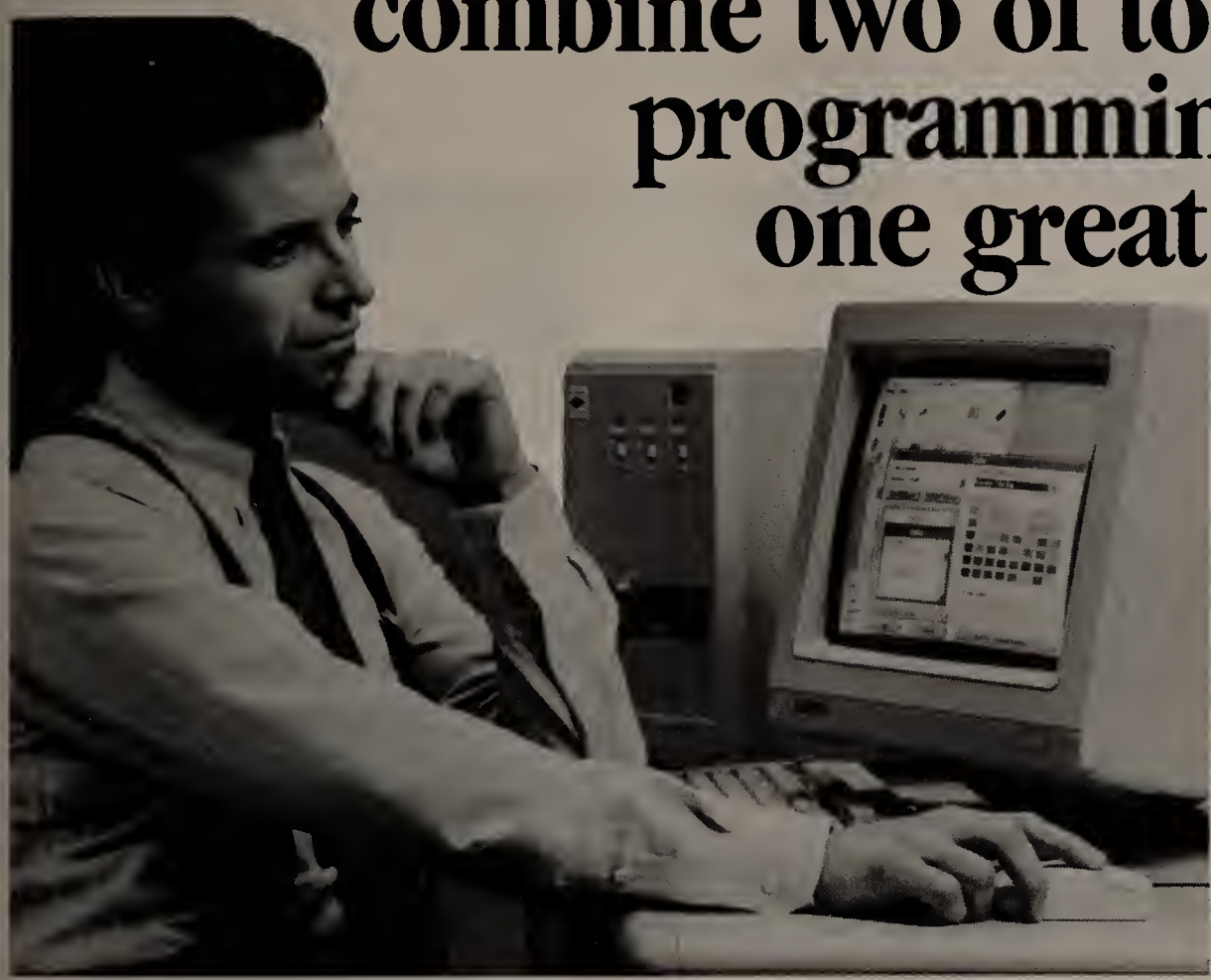

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EXECUTIVE SUMMARY

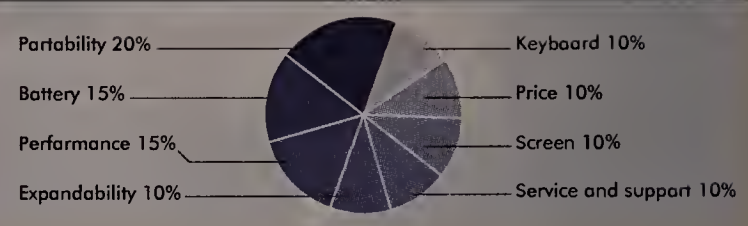
Notebooks on the Run: The 386SX Edge

TI's speedy, lightweight TravelMate won't slow you down—at work or on the hoof.

PC WORLD BEST BUY

The Best Buy of the latest 386SX notebook computers, the **TI TravelMate 3000 WinSX** is fast enough to race through your work and light enough to let you race through airports. For such a small unit, it offers surprisingly good battery life and a stunning screen. But if you can pay to play, check out the superfast, incredibly long-lasting **ZDS MastersPort 386SL,** which boasts outstanding portability and a first-rate keyboard.

Key Buying Issues: Percentage of Importance



Excellent ★★★★
Good ★★★
Fair ★★
Poor ★

	Reader service number	Portability	Battery	Performance	Expandability	Keyboard	Price	Screen	Service and support	Overall value
AcerAnyWare 1120NX	714	☆☆☆	☆☆☆	☆☆½	☆☆☆½	☆☆	☆½	☆☆☆☆	☆☆½	★★★
ALR Venture 386SX/20	715	☆☆☆	☆½	☆☆☆	☆☆☆	☆☆☆½	☆☆½	☆☆½	☆☆☆	★★★
Altima LSX	716	☆☆☆½	☆☆½	☆☆☆	☆☆☆½	☆☆	☆☆½	☆☆½	☆☆☆	★★★
AST Premium Exec 386SX/20	717	☆☆☆	☆☆☆½	☆☆☆	☆☆☆½	☆☆☆	☆½	☆☆☆	☆☆☆½	★★★
AT&T Safari NSX/20	718	☆☆☆½	☆☆☆	☆☆☆	☆☆☆½	☆☆☆☆	½	☆☆☆☆	☆☆☆	★★★½
Blackship 386SX/20 NB	719	☆☆☆½	☆☆½	☆☆☆½	☆☆☆	☆☆½	☆☆☆☆	☆☆☆	☆☆☆½	★★★½
Compaq LTE 386s/20	720	☆☆☆	☆☆☆½	☆☆☆☆	☆☆☆☆	☆☆½	½	☆☆☆	☆☆½	★★★
Dell System 320N+	721	☆☆☆½	☆☆☆	☆☆☆	☆☆☆½	☆☆☆½	☆	☆☆	☆☆☆☆	★★★
Eltech 3026E	722	☆☆☆	☆☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆☆☆	☆☆½	☆☆☆	★★★½
Fora NBS 386S/20	723	☆☆☆☆	☆	*	☆☆☆½	☆☆	☆☆☆	☆☆½	☆☆☆½	★★½
Kris Master	724	☆☆☆½	☆☆☆	☆☆☆½	☆☆☆☆	☆☆½	☆☆☆½	☆☆½	☆☆☆½	★★★½
Librex 386SX/20	725	☆☆☆☆	☆½	☆☆☆	☆☆½	☆☆☆	☆☆☆	☆☆☆☆	☆☆☆☆	★★★½
Micro Express 386 SX/20	726	☆☆☆	☆☆½	☆☆½	☆☆☆½	☆☆	☆☆☆☆	☆☆½	☆☆☆½	★★★
NEC UltraLite SX/20	727	☆☆	☆☆☆	☆☆	☆☆☆½	☆☆½	☆☆	☆☆☆	☆☆☆½	★★½
Panasonic CF-370H6	728	☆☆☆½	☆☆½	☆☆½	☆☆☆½	☆☆☆½	☆½	☆☆☆	☆☆☆	★★★
Philips Magnavox Metalis SX.20	729	☆☆☆½	☆☆☆	☆☆☆	☆☆☆☆	☆☆½	☆	☆☆☆	☆☆☆½	★★★
Samsung NoteMaster 386S/20	730	☆☆☆	☆☆½	☆☆☆	☆☆☆½	☆½	☆☆½	☆☆☆☆	☆☆☆½	★★★
Tangent 320N	731	☆☆☆☆	☆½	☆☆☆	☆☆☆☆	☆☆☆½	☆☆☆½	☆☆½	☆☆☆½	★★★½
TI TravelMate 3000 WinSX	732	★★★★	★★★★	★★★½	★★★★	★★★	★★½	★★★★	★★★	★★★★
Toshiba T2200SX	733	☆☆☆☆	☆☆☆☆	☆☆☆	☆☆☆☆	☆☆☆½	½	☆☆☆☆	☆☆☆	★★★½
ZDS MastersPort 386SL	734	☆☆☆½	☆☆☆☆	☆☆☆☆	☆☆☆½	☆☆☆☆	½	☆☆½	☆☆☆☆	★★★½
ZDS MastersPort 386SX	764	☆☆☆½	☆☆☆	☆☆☆½	☆☆½	☆☆☆	☆½	☆☆☆½	☆☆☆☆	★★★½
Zeos 80386SX-20	735	☆☆	☆☆	☆☆	☆☆☆	☆☆☆½	☆☆	☆☆☆½	☆☆☆	★★½

Overall value is produced by multiplying each category rating by its weight percentage, summing the results, and grading on a curve to the nearest half number.

*Could not complete performance tests.

Micro Express 386 SX/20

PROS: Very low price, fine service and support

CONS: Fairly slow, small hard-to-read screen, confusing keyboard layout

When you're hunting for a bargain, trade-offs are a fact of life. The question is, how bad are they? At $2513 the good-looking SX/20 is one of the most inexpensive notebooks you can find, and it comes with excellent support. Now you start subtracting. At 9.1 pounds traveling weight, it's a tad heavy, and 232 cubic inches is a bit bulky. The battery life (2:42 with power saving off) is unimpressive but far from the worst.

So far, so tolerable. But then you notice the SX/20 is fourth slowest overall, despite decent *Windows* scores, and its screen is small and lacks good contrast. You can't suspend *Windows* safely, and the manual is sloppy and poorly organized. The keyboard needs work too: Cursor key layout is nonstandard, and page keys are emulated. Thanks to the low price, the 386 SX/20 rises above its flaws, but Blackship's 386SX/20 NB is faster, lighter, smaller, has a bigger screen—and costs $269 less.

Bargain alert! This sleek $2513 gem from Micro Express is a good deal despite the relatively slow performance.

The UltraLite is neither light nor ultrafast. But the unit's built-in SCSI port is perfect for a CD ROM drive.

NEC UltraLite SX/20

PROS: SCSI port, big screen

CONS: Slowest in roundup, heavy, large

If you need to connect with a CD ROM drive on the road, you'll appreciate the UltraLite SX/20's built-in SCSI port. This $3521 system also boasts a big screen with good dark characters, although the display on our test unit suffered from uneven backlighting. You can install 10MB of CPU-speed RAM—handy for *Windows*, which is included free.

Just don't expect speed. This notebook was the slowest overall of the units we tested. Nor do the UltraLite's 10.4-pound traveling weight (heaviest in the roundup, thanks to a huge AC power transformer) and bulky box justify its name. Also disappointing is the 1:51 battery life, but good power-saving options (including a *Windows*-safe S/R) give you over 5 hours. Still, the combination of SCSI port and gorgeous display makes this a good choice for traveling multimedia presentations—especially if NEC makes good on its promise of a new, lighter transformer.

Panasonic CF-370H6

PROS: Light, good keyboard, nice design

CONS: Fairly slow, small screen

The nicely designed Panasonic CF-370H6 has a lot to like: It's light (8.1 pounds traveling weight); and though full-bore battery life is just over 2 hours, enabling all the power-saving features gives you almost 7 hours—the third-best score. The CF-370H6 also boasts a fumble-free, three-position brightness switch, a solidly made inset screen hinge, and a good keyboard with an intelligent layout.

That's the good news. The bad news includes a fairly high $3742 price and slow performance on all but the *Windows* tests. The screen ties for smallest in the roundup, and it's so wide it distorts graphics. There's a suspend/resume function, but it doesn't get a special button; the on-off switch doubles as the S/R control, and it doesn't work well with *Windows*. But if you need a lightweight notebook with long battery life, the CF-370H6 makes a reasonable choice.

The screen can distort graphics, but travelers will love the light weight and 6-hour–plus computing sessions.

Philips Magnavox Metalis SX.20

PROS: Small, long battery life

CONS: Expensive, small screen

Philips's Magnavox Metalis SX.20 is one heavy metal monster, from its 9.3-pound traveling weight to its $3899 price tag, but its slim, trim case keeps its portability rating high. Moreover, a lot of the weight is due to powerful batteries. The Magnavox Metalis demonstrates impressive staying power away from the AC plug: nearly 3 hours with power-saving features off and over 5 hours in the power-saving trade-off mode.

The screen is fairly small, but the display and contrast are so sharp you can work for hours without reaching for the Visine. Because the Metalis is hinged several inches in, you won't have any trouble working on a tray table. Also, you use special keys to adjust brightness and contrast instead of having to fumble with wheels, knobs, or slides. The keyboard touch is fine, but page keys are emulated. If plenty of battery power in a tiny package sounds good, the Metalis fills the bill.

If 3- to 5-hour battery life and a crisp screen sound good to you, you'll find the Metalis SX.20 well worth the high price.

The NoteMaster bundles Windows, and its superb big screen is the perfect display for Windows on the road.

Samsung NoteMaster 386S/20

PROS: Big sharp screen, Windows included

CONS: Heavy, awkward keyboard layout, limited power-saving features

Samsung's cream-colored NoteMaster 386S/20 delivers middle-of-the-road performance at a middlin' price. But before you start yawning, check out its superb four-star display. Not only is the screen one of the biggest and brightest in the roundup, for once there's no compromise: It offers exceptionally sharp images and high contrast. The battery delivers almost 3 hours of life with power-saving features off, but even with them enabled, all you get is 3½ hours. And though the system comes bundled with *Windows,* the sleep mode may cause it to crash.

The NoteMaster is heavier than average (9.4 pounds traveling weight), and getting used to the keyboard takes a while: Its cursor key layout is nonstandard, and you have to press the <Fn> key to turn the cursor keys into page keys. But despite its limitations, the top-notch screen makes the NoteMaster a capable presentation machine.

Tangent 320N

PROS: Very low price, extremely light, good keyboard

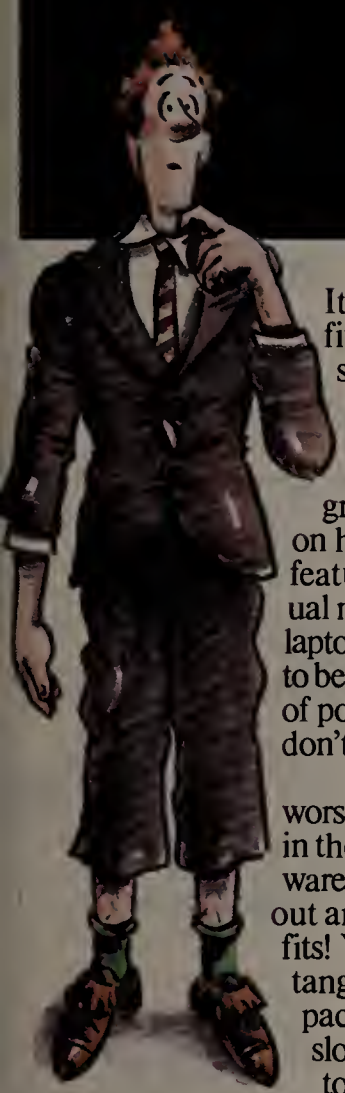
CONS: Small screen, very short battery life, S/R not safe for Windows

The model number of the Tangent 320N is the same as the unit we reviewed last November, but this is an entirely new machine, made by a different Taiwanese OEM. At 7.7 pounds the 320N is one of the lightest notebooks in the roundup, and its $2615 price is deliciously low. Performance is ho-hum except for *Windows,* where the Tangent shines with a fast, fourth-place finish. The 320N boasts a fine keyboard layout with all the important keys dedicated, and though the 320N's screen ties for the smallest in the roundup, it's sharp and easy on the eyes.

As with the Librex, you pay for the light weight with abysmal battery life: only 1:18 with power saving off and 2:28 with it on. Nor is it safe to use sleep mode with *Windows.* And the dinky manual reads like it was dashed off over the weekend. But if you don't need long battery life and like your *Windows* fast and sassy, the 320N is a superb value.

If you rarely stray from a power outlet, the low-cost, lightweight Tangent may prove an irresistible bargain.

Why So Many Communications Users Can't Fit Into Their Software.



It seems like no one fits into their comm software anymore. Your company's power users can't squeeze into programs that scrimp on high-performance features. Yet, your casual modem users and laptop users can't afford to be swamped by scores of power features they don't need.

To make matters worse, if everyone brings in their own comm software, PC anarchy breaks out and then nothing fits! You're left with a tangle of incompatible packages from the sloppiest shareware to the most sophisticated software. You can't share scripts. Can't share support and training. Can't easily share much of anything!

What you *can* do is take a closer look at the Crosstalk® family of products.

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Crosstalk Mk.4 and Crosstalk Communicator not only let you fit the right software to the right users, but both comm programs actually work as a team. Since the two programs share the same code base and menu system, users can easily move from one to the other. Training and support are simplified. And complex scripts can be written on one, yet run on the other.

With both packages, you get the engineering excellence for which Crosstalk is famous–and the kind of support and back-up that only come from a company like DCA®.

> *"If you develop scripts in Mk.4 but your coworker prefers the easier-to-use Crosstalk Communicator, that's fine. You can use the same scripts with Communicator."*
> *–PC Magazine*

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Crosstalk Mk.4 is the ultimate comm software for power users. When the editors of *PC Magazine* chose it as the top performer among all comm packages for 1991, they called it, "A top-notch program that does almost everything and does it all right..." It has the CASL™ scripting language (a powerful programming language like C or Pascal) for automating communications. Plus, highly specialized capabilities from VT™ emulators and ZMODEM to FTTERM and IND$FILE. Data transmission rates up to 115,200bps. Multiple sessions. And modem sharing on LANs.

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PC WORLD BEST BUY — April 1991 Crosstalk Communicator

PC WORLD BEST BUY — April 1991 Crosstalk Mk.4

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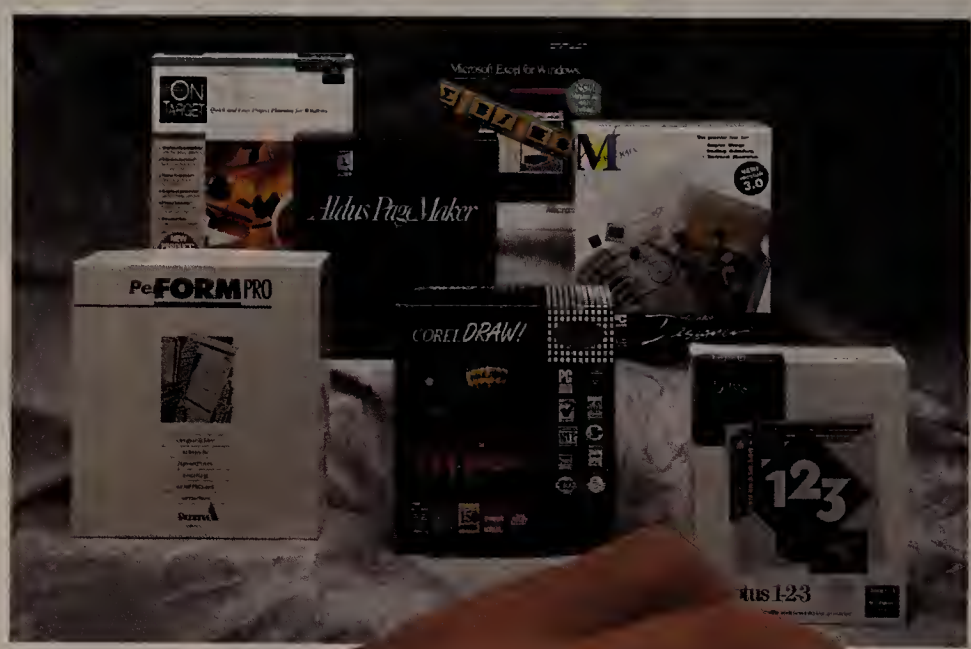

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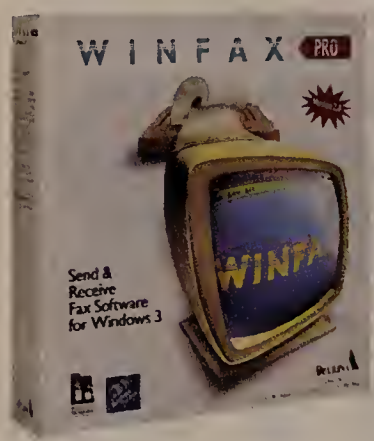

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Circle 61 on reader service card

More 20-MHz SX and SL Notebooks: Best of the Rest

The flood of 20-MHz SX/SL notebooks is rising—and your choices are better by the day. Here are 25 more.

Model	Price [1]	Size (inches)	RAM capacity (MB)	Hard disk (MB)	Warranty (months)
ALR VIP M	$3495	11.8 x 8.8 x 2.3	16	40	12
ALR VIP SL	$3495	11.8 x 8.8 x 2.3	16	40	12
Chaplet NBC 386SL	$3314	11.3 x 8.5 x 1.5	8	60	12
Commax NB386sl	$3495	11 x 8.5 x 1.5	8	60	12
Commax Ultrathin	$3195	11 x 8.5 x 1.4	4	60	12
CompuAdd 320nx	$2724 [2]	11 x 8.5 x 2.1	6	60	12
Copam NB 386SXL/20	$2799	11 x 8.6 x 1.5	4	40	12
Core Pacific NB386sx/20	$1635	11 x 9.3 x 1.9	16	60	12
Dataworld NB325 SXL	$2445	11 x 8.5 x 2	16	60	12
Dataworld NB320 SL	$2645	11 x 8.5 x 2	16	60	12
Dauphin 1000 Lapbook	$3254	12.5 x 11.3 x 2.3	32	60	12
Dell System NX20	$2787	11 x 8.3 x 2	6	40	12
Everex Tempo Carrier	$3294	11 x 8.5 x 1.5	8	40	12
GoldStar GS 620	$2795 [2]	11 x 8.5 x 2	4	40	12
Grid 1755	$4350 [2]	12.2 x 10 x 1.7	8	80	12
Hyundai Super-NB386S	$3173 [2]	11 x 8.5 x 2	8	40	18
IBM PS/2 Model L40 SX	$4943 [2]	12.8 x 10.7 x 2.1	18	60	12
Mitac 3026E	$2395	11.2 x 9.2 x 2	6	60	12
Mitac 3027E	$2895	11.2 x 9.2 x 2	16	60	12
Mitsuba Ninja 386SX 20-MHz Notebook	$2699	11 x 8.5 x 2	8	60	12
Olivetti Notebook S20	$5155 [2]	11.7 x 8.26 x 2	6	60	12
Packard Bell PB386SXNB	$2200 [3]	11 x 8.7 x 1.9	8	40	12
Sharp PC-6340	$2699	11 x 8.5 x 1.4	8	40	12
Tandon NB/386SX	$4449 [2]	11 x 8.7 x 2.1	16	60	12
Tandy 3820 HD	$3599	12.2 x 10 x 1.7	8	60	12

[1] Price based on 4MB to 5MB RAM, 40MB to 60MB hard disk, 2400-baud internal or external modem, at least one 1.44MB 3½-inch floppy drive, at least one parallel and one serial port, and DOS 3.31 or later version.
[2] With 2MB RAM.
[3] Estimated street price; list price unavailable.

For more information about all products in this sidebar, circle reader service no. 912.

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408/732-7950, 408/732-6050 (fax)
Reader service no. 737

Commax Technologies
800/526-6629, 408/435-5000
Reader service no. 738

CompuAdd Corp.
800/456-3116, 512/331-6236 (fax)
Reader service no. 739

Copam USA
800/828-4200, 510/623-8551 (fax)
Reader service no. 740

Core Pacific
908/704-8383, 908/704-8387 (fax)
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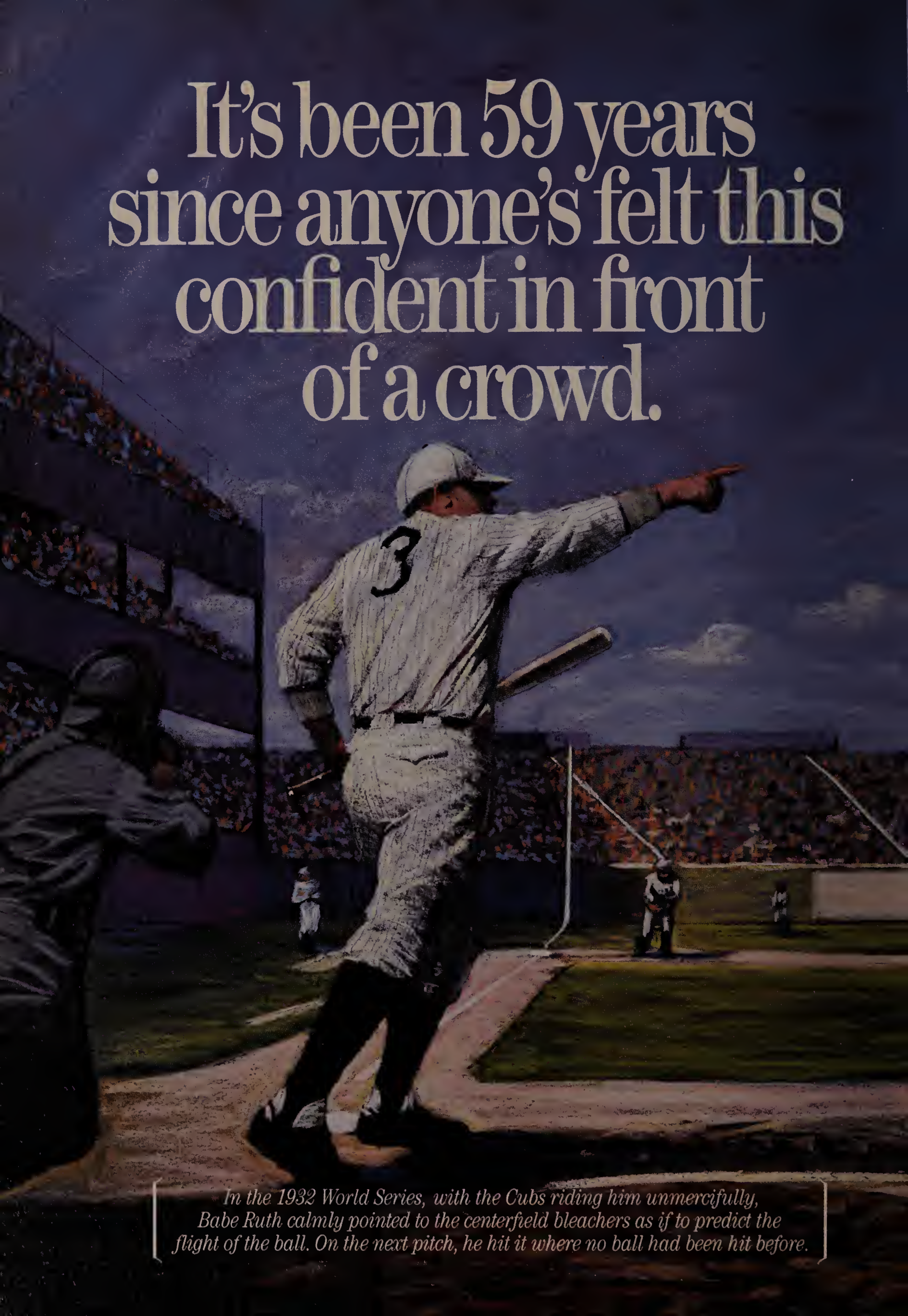

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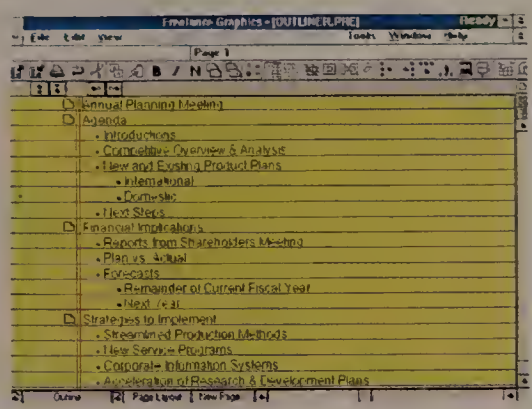

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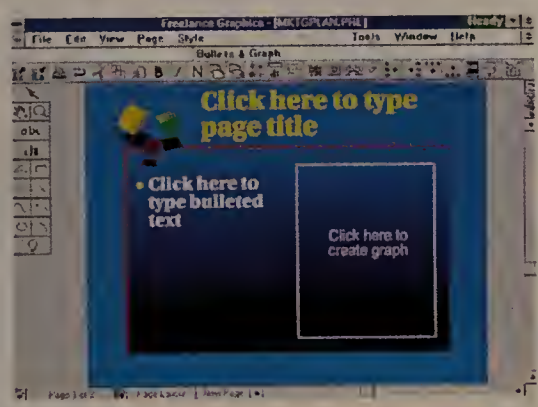

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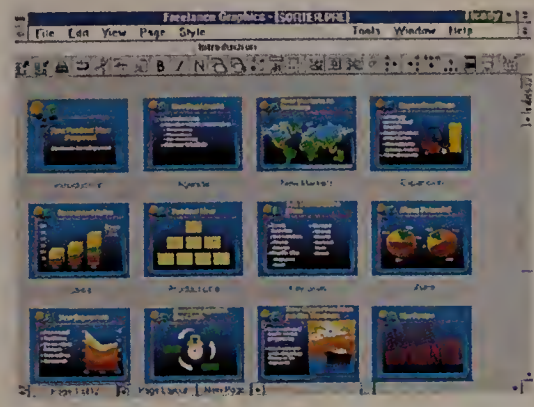

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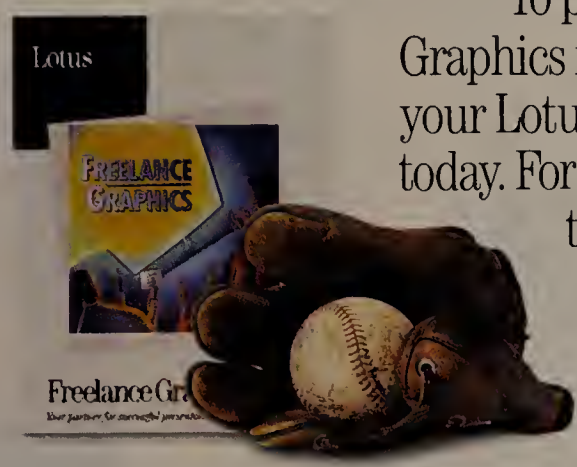

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TI TravelMate 3000 WinSX

PROS: Fast, extremely light, very small, huge screen

CONS: 6MB RAM ceiling, short battery life with power saving disabled

The $3084 WinSX is designed for *Windows* every step of the way, yet it's a Best Buy for just about everyone. The WinSX is a serious speedster, and not just on *Windows*—it took fourth place overall. Not only is *Windows* preinstalled, its parameters have been optimized for the system's special BIOS and high-speed video system—and the WinSX's S/R is guaranteed to keep it happy. Two more pluses for *Windows* devotees are a TravelPoint, thumb-operated trackball that mounts on the side of the machine, and a superb screen that ties for biggest in the roundup.

The TI's battery score (4:15 with power saving) is impressive considering the low 7.4-pound traveling weight. The WinSX uses patented power-saving software to slow the CPU between keystrokes. The WinSX is a compelling value; for *Windows* fanatics, it's irresistible.

This lightweight speedster with the gorgeous big display is our only Best Buy; it's particularly well suited to Windows.

Good things come in 7-pound packages—especially this 3- to 6-hour Toshiba. But $4441 is a bit rich for our blood.

Toshiba T2200SX

PROS: Extremely portable, great battery life, big screen, fine keyboard

CONS: Very expensive

Like Dell's 320N+, Toshiba's impressive T2200SX features nickel-hydride batteries—they charge in only 1 hour and last about a third longer than nickel-cadmium cells. Thus, while the T2200SX is the smallest notebook in our roundup—and, at 7 pounds traveling weight, the second lightest—it delivers amazing battery life: over 3 hours with power saving defeated and close to 6 hours in its lean, mean mode.

Despite its trim size, the T2200SX has one of the biggest and best-looking screens in this review. It also sports an excellent keyboard, and performance is respectable. If the system goes into auto-sleep while you're running *Windows*, Toshiba promises that it will still be working when you wake it up. So why doesn't the T2200SX rate four stars? A $4441 price tag, that's why. And that's the only thing standing between this outstanding machine and a Best Buy.

ZDS MastersPort 386SL

PROS: Fastest in roundup, light, small, 8 hours power-saving life, superb keyboard

CONS: Very expensive, small screen

This is the first SL notebook to reach the market, and it's a dazzler. Battery life in full-use mode is a mediocre 2:09, but turn on the *Windows*-proof power-saving features and you get a stupendous 8:22. Furthermore, thanks to the SL chip's built-in cache controller, and 64K of external cache memory, the MastersPort took top performance honors in almost every benchmark. It's also one of the smallest notebooks here, and it weighs in with an airy 8.4 pounds traveling weight. The keyboard is perfect, with a flawless layout and a nice touch.

The bad news? The display is small and a bit dark. And the price—$4478—is stratospheric. But considering what you get, this is still one of the best values in the roundup. (At press time, Zenith Data Systems discontinued this unit in favor of a 25-MHz version—so expect to pay a little more for even faster performance.)

This lone SL machine earns second-place honors with the fastest performance and best power saving in the roundup.

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Symphony Release 2.2

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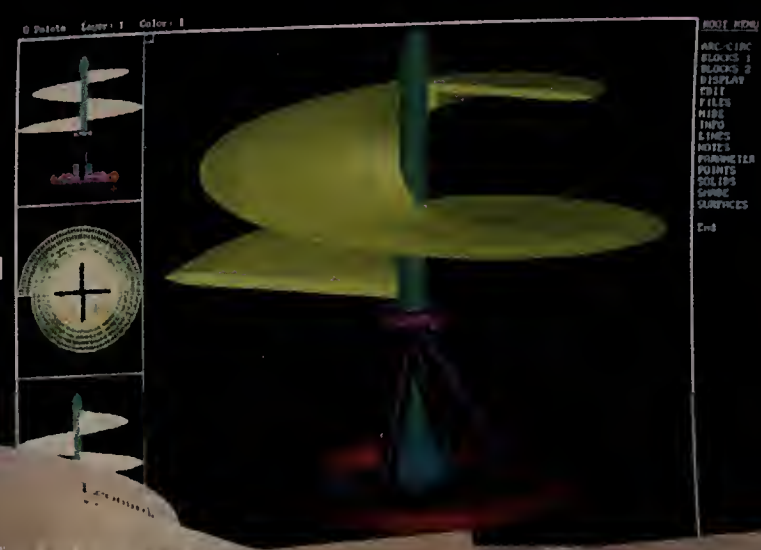
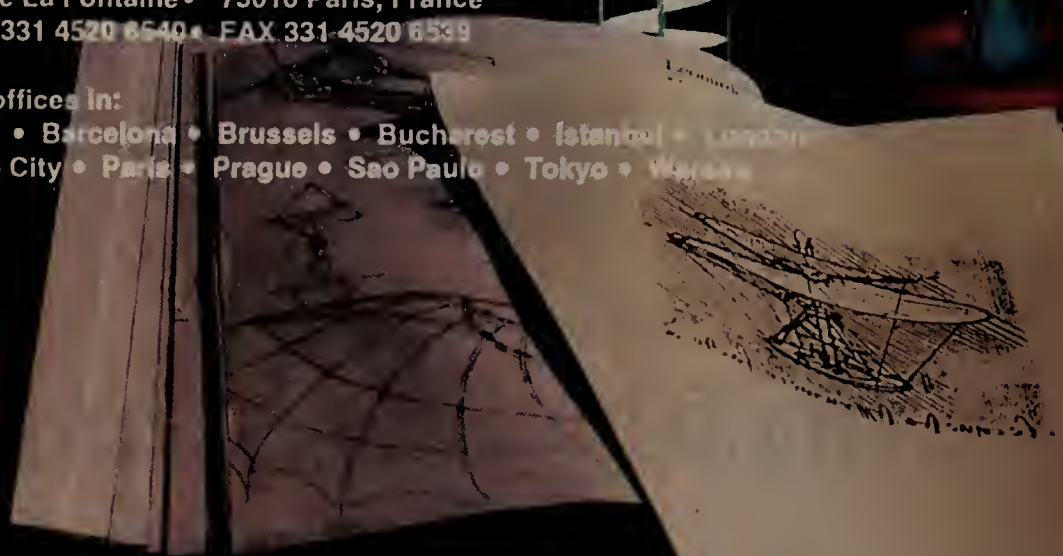




Circle 306 on reader service card

Also Available for Macint

ZDS MastersPort 386SX

PROS: Fast, small, super service and support

CONS: 4MB RAM capacity, can't suspend Windows safely

Even though ZDS is now in the SL business, there's no indication its popular MastersPort 386SX is going away. And that's good news, because this solid system delivers real value—for about $750 less. (The buy-in is still steep, however, at $3732.) While this 8.7-pound unit isn't quite as fast as its SL-based sibling, it's still one of the swiftest machines we tested. It can't match the SL's breathtaking battery life, but it still gives you almost 7 hours with power saving enabled.

The 386SX's profile is trim, and its large screen is sharp and crisp. Brightness and contrast controls are quite easy to adjust. The keyboard lacks dedicated page keys, but its excellent touch makes up for the inconvenience—and special keys provide access to setup and display choices. Despite its slightly cramped 4MB RAM capacity, this portable speedster is one of the best SX notebooks you can buy.

Next to its stunning SL sibling, it's easy to overlook this modest SX's strong performance, small size, and solid design.

You'll like the big screen and fine keyboard but not the slow performance and limited power-saving skills.

Zeos 80386SX-20

PROS: Large screen, good keyboard

CONS: Very slow, bulky, heavy

Zeos's 80386SX-20 is not only underwhelming—at $3395 it's somewhat overpriced as well. Its overall performance ranks next to last in the roundup, battery life is mediocre, and there's no suspend/resume or auto-sleep function. At 9 pounds traveling weight, it's one of the heavier notebooks we looked at, and it's the second bulkiest in the batch.

The Zeos sports a large screen, but the washed-out display makes it a bit hard to read—and the brightness and contrast controls are tiny wheels on the right of the case, where they are far too easy to disturb. Warranty and tech support are fairly good, but there's no on-site service and no turnaround guarantee. There's got to be a bright side, right? Well, the keyboard is quite good, and the screen hinge is inset a full 3 inches to provide a good working angle. But looking at the big picture, the Zeos is outmatched.

WHERE TO BUY

AcerAnyWare 1120NX
Acer America Corp.
2641 Orchard Pkwy.
San Jose, CA 95134
800/733-2237
LIST PRICE: 5MB RAM, 1.44MB floppy, 60MB hard disk, 2400-baud fax-modem, AC adapter, carrying case, DOS 5.0 $4853
ACCESSORIES: 2MB RAM $379, additional battery $129, expansion chassis $599
Reader service no. 714

ALR Venture 386SX/20
Advanced Logic Research, Inc.
9401 Jeronimo
Irvine, CA 92718
800/444-4257,
714/581-9240 (fax)
LIST PRICE: 4MB RAM, 1.44MB floppy, 60MB hard disk, AC adapter, carrying case, DOS 5.0 $3495
ACCESSORIES: 4MB RAM $899, pocket fax-modem $695, 80MB hard disk $400
Reader service no. 715

Altima LSX
Altima Systems, Inc.
1390 Willow Pass Rd.
#1050
Concord, CA 94520
800/356-9990,
510/356-2408 (fax)
LIST PRICE: 4MB RAM, 1.44MB floppy, 60MB hard disk, 2400-baud fax-modem, AC adapter, carrying case, DOS 5.0, WordStar Laptop Collection $3699
ACCESSORIES: 2MB RAM $349, 80387SX math coprocessor $199, additional battery $99
Reader service no. 716

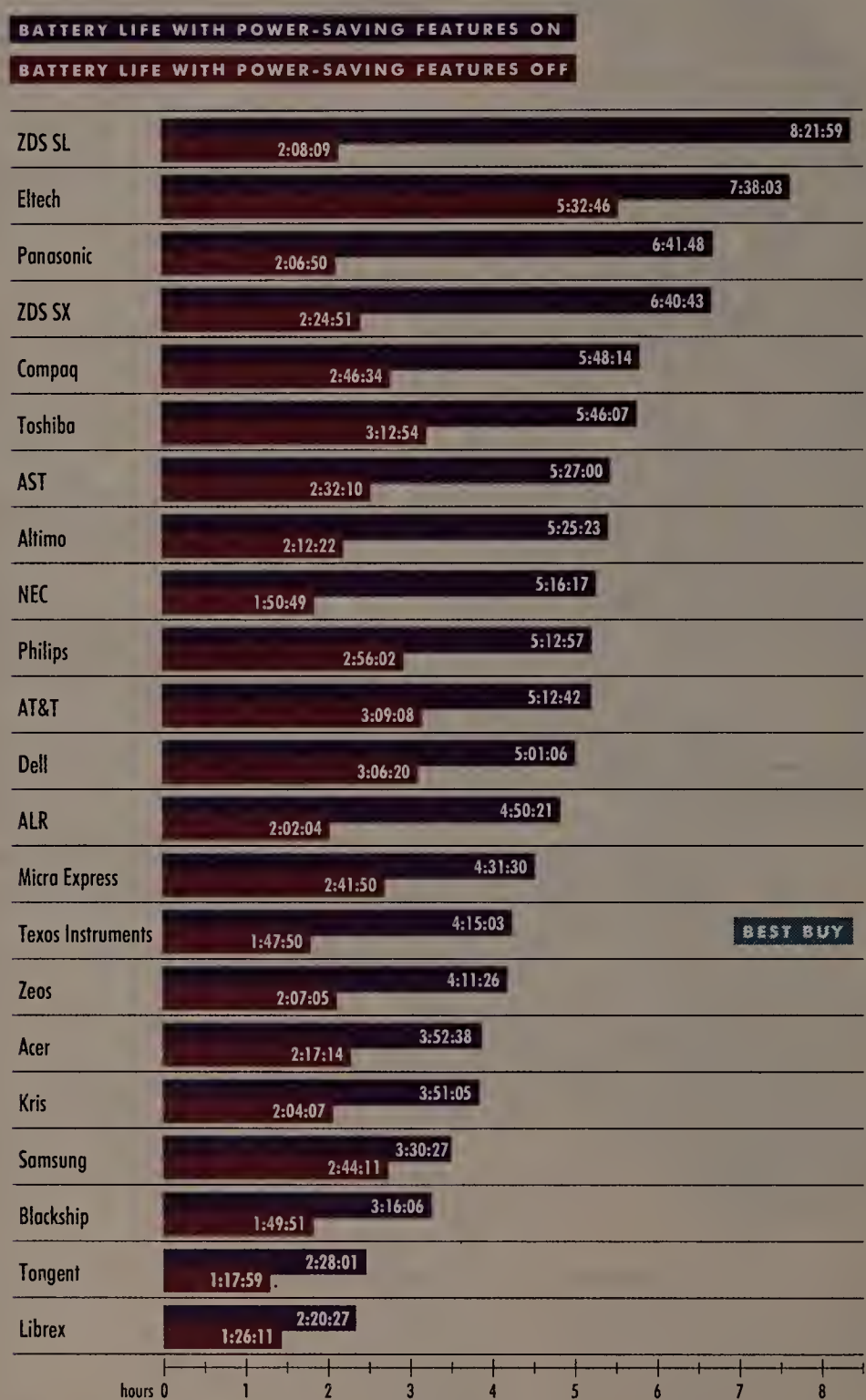
AST Premium Exec 386SX/20
AST Research Inc.
16215 Alton Pkwy.
P.O. Box 19658
Irvine, CA 92713-9658
800/727-4278,
714/727-9355 (fax)
LIST PRICE: 4MB RAM, 1.44MB floppy, 60MB hard disk, internal modem, AC adapter, carrying case, DOS 5.0 $3943
ACCESSORIES: 2MB RAM $338, additional battery $99
Reader service no. 717

AT&T Safari NSX/20
AT&T
14K Worlds Fair Dr.
Somerset, NJ 08873
800/247-1212,

PC WORLD TEST REPORT

Power-Saving Tricks Add Hours to Battery Sessions

Most notebooks can make batteries last more than twice their normal duration, but the lone SL in the roundup, from Zenith Data Systems, can almost quadruple the length of battery sessions. Eltech's apparently high scores with power-saving features disabled are due to built-in power-saving features that you can't turn off.



Methodology
We run on application with built-in pauses of fixed duration. We run one set of tests with the notebook's power-saving features disabled or set to minimum (power-saving features off). We then run the same set of tests with each notebook's power-saving features enabled and set to maximum (power-saving features on).

Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

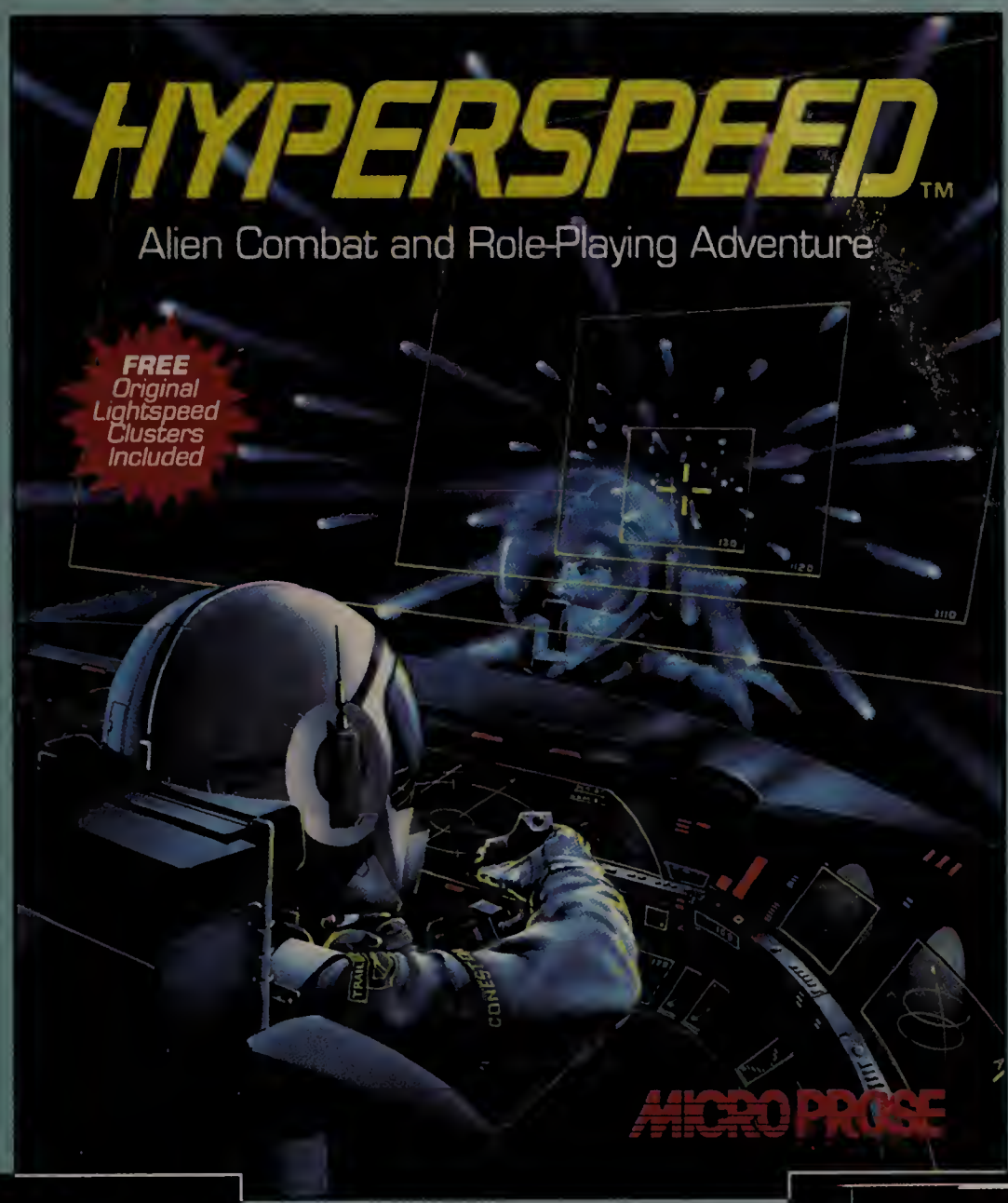
WHERE TO BUY

908/469-4578 (fax)
LIST PRICE: 4MB RAM, 1.44MB floppy, 40MB hard disk, 2400-baud modem, mouse, two batteries, AC adapter, carrying case, DOS 4.01, Windows 3.0, communications software $5228
ACCESSORIES: 2MB RAM $479, additional battery $129, auto adapter $129
Reader service no. 718

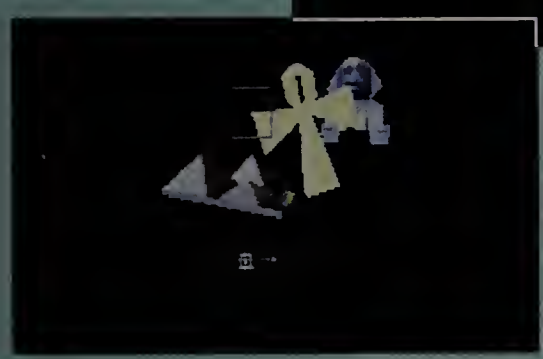
Blackship 386SX/20 NB
Blackship Computer Systems, Inc.
2031 O'Toole Ave.
San Jose, CA 95131
800/531-7447, 408/432-1443 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 40MB hard disk, 2400-baud pocket modem, AC adapter, carrying case, DOS 5.0 $2244
ACCESSORIES: 2MB RAM $250, pocket 9600-baud fax/2400-baud modem $350, expansion chassis $350
Reader service no. 719

Compaq LTE 386s/20
Compaq Computer Corp.
P.O. Box 692000
Houston, TX 77269-2000
800/231-0900, 800/345-1518
LIST PRICE: 4MB RAM, 1.44MB floppy, 60MB hard disk, enhanced 2400-baud internal modem, AC adapter, carrying case, DOS 4.01 $5955
ACCESSORIES: 4MB RAM $1499, additional battery $169, desktop expansion base $999
Reader service no. 720

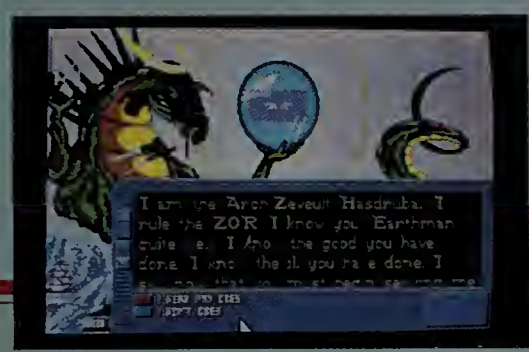
"Aliens approaching... fightercraft launched."



Look for an F-117A Stealth Fighter Demo in specially marked packages of TDK Micro Floppy Disks.
TDK.



IBM-PC screens shown.



There's no room for error when traveling faster than the speed of light, racing through star systems in a desperate search for a new world to house Mankind. But there are plenty of opportunities for mistakes. Alien races of every conceivable size, shape, temperament and sophistication seek to aid, use, corrupt or destroy you — and you don't know which.

• **Diplomacy**. Negotiate with a variety of alien races. Forge strategic treaties and alliances with those you trust. Each alien race is uniquely animated.

• **Firepower**. Pilot a massive starship armed with remote-controlled fightercraft, kamikaze attack ships, a devastating plasma gun and high-tech probes. Customize the ship's engine and weapons systems. Battle alien warships in Super 3-D Graphics.

Hyperspeed is a dramatic enhancement of MicroProse's popular interstellar action epic, *Lightspeed*, featuring four giant star clusters to explore, an all-new animated opening sequence, more aliens and more role-playing adventure.

For IBM-PC/Tandy/compatibles. For the latest information on release dates and availabilities, call MicroProse Customer Service at 301-771-1151, 9 am to 5 pm EST, weekdays. © 1991 MicroProse Software, Inc., 180 Lakefront Drive, Hunt Valley, MD 21030.

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ENTERTAINMENT • SOFTWARE

Circle 160 on reader service card

WHERE TO BUY

Dell System 320N+
Dell Computer Corp.
9505 Arboretum Blvd.
Austin, TX 78759-7299
800/289-3355,
800/727-8320 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, 2400-baud internal madem, AC adapter, carrying case, DOS 5.0 $3798
ACCESSORIES: 2MB RAM $249, additianal battery $169, 80MB hard disk $300
Reader service no. 721

Eltech 3026E
Eltech Research, Inc.
47266 Benicia St.
Fremant, CA 94538
510/438-0990,
510/438-0663 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, 2400-baud packet madem, AC adapter, carrying case, DOS 5.0, Windaws 3.0 $2349
ACCESSORIES: 2MB RAM $150, additianal battery $48, packet ethernet adapter $360, expansian chassis $350
Reader service no. 722

Fora NBS 386S/20
Fara Inc.
3096 Orchard Dr.
San Jase, CA 95134
408/944-0393,
408/944-0392 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, 2400-baud internal madem, AC adapter, carrying case, DOS 5.0 $3140
ACCESSORIES: 4MB RAM $350, additional battery $75, external 1.2MB flappy $295
Reader service no. 723

Kris Master
Kris Technalagies
260 E. Grand Ave.
Sauth San Francisca, CA 94080
800/282-5747,
415/877-8048 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal fax-madem, AC adapter, carrying case, DOS 5.0, Windaws 3.0 $2650
ACCESSORIES: 85MB hard disk upgrade $225, additianal battery $59, expansian chassis $349
Reader service no. 724

Librex 386SX/20
Librex Camputer Systems, Inc.
1731 Technalagy Dr.
San Jase, CA 95110
800/248-4880,
408/441-7842 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal fax-madem, AC adapter, carrying case, DOS 5.0 $4028
ACCESSORIES: additianal battery $59, auta adapter $99
Reader service no. 725

Micro Express 386 SX/20
Micra Express
1801 Carnegie Ave.
Santa Ana, CA 92705
800/989-9900,
714/852-1400,
714/852-1225 (fax)
LIST PRICE: 5MB RAM, 1.44MB flappy, 40MB hard disk, internal fax-madem, AC adapter, carrying case, DOS 5.0 $2535
ACCESSORIES: additianal battery $100
Reader service no. 726

NEC UltraLite SX/20
NEC Technalagies, Inc.
1414 Massachusetts Ave.
Baxbaraugh, MA 01719
800/366-3632,
508/264-8000 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 40MB hard disk, internal madem, AC adapter, carrying case, DOS 5.0, Windaws 3.0 $4333
ACCESSORIES: 2MB RAM $399, additianal battery $99
Reader service no. 727

Panasonic CF-370H6
Panasanic Cammunicatians and Systems Ca.
2 Panasanic Way
Secaucus, NJ 07094
800/742-8086,
201/348-7000
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal madem, AC adapter, carrying case, DOS 5.0 $4515
ACCESSORIES: 1MB RAM $179, additianal battery $79
Reader service no. 728

Philips Magnavox Metalis SX.20
Philips Cansumer Electranics Ca.
One Philips Dr.
P.O. Bax 14810
Knaxville, TN 37914-1810
800/722-6224,
310/217-1883 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal fax-madem, AC adapter, carrying case, DOS 4.01 $4299
ACCESSORIES: 4MB RAM $800, additianal battery $100, expansian chassis $699
Reader service no. 729

Samsung NoteMaster 386S/20
Samsung Infarmatian Systems America, Inc.
3655 N. First St.
San Jase, CA 95134-1713
800/624-8999 ext. 851, 408/434-5653 (fax)
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal madem, AC adapter, carrying case, DOS 5.0, Windaws 3.0 $3087
ACCESSORIES: 4MB RAM $349, additianal battery $99
Reader service no. 730

Tangent 320N
Tangent Camputer Inc.
197 Airpart Blvd.
Burlingame, CA 94010
800/223-6677,
415/342-9380 (fax)
LIST PRICE: 5MB RAM, 1.44MB flappy, 40MB hard disk, internal madem, AC adapter, auta adapter, DOS 5.0 $3095
ACCESSORIES: 2MB RAM $200, additianal battery $175, five-slat expansian chassis $595, carrying case $69
Reader service no. 731

TI TravelMate 3000 WinSX
Texas Instruments Inc.
P.O. Bax 202230
Austin, TX 78720-2230
800/527-3500
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal madem, AC adapter, carrying case, DOS 5.0, Windaws 3.0 $3867
ACCESSORIES: 2MB RAM $299, additianal battery $99, expansian chassis $999, TravelPaint trackball $99
Reader service no. 732

Toshiba T2200SX
Tashiba America Infarmatian Systems
9740 Irvine Blvd.
Irvine, CA 92713-9724
800/334-3445
LIST PRICE: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal madem, AC adapter, DOS $4778
ACCESSORIES: 2MB RAM $479, additianal battery $199, expansian chassis $999, carrying case $79
Reader service no. 733

ZDS MastersPort 386SL, ZDS MastersPort 386SX
Zenith Data Systems
2150 E. Lake Caak Rd.
Buffala Grave, IL 60089
800/553-0331
LIST PRICE: MastersPart 386SL: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal madem, AC adapter, carrying case, DOS 5.0, Windaws 3.0 $5336
MastersPart 386SX: 4MB RAM, 1.44MB flappy, 60MB hard disk, internal madem, AC adapter, DOS 4.01 $4136
ACCESSORIES: 2MB RAM $399, additianal battery $115
Reader service no. 734

Zeos 80386SX-20
Zeas Int'l, Ltd.
530 Fifth Ave. NW
St. Paul, MN 55112
800/423-5891,
612/633-1325 (fax)
LIST PRICE: 5MB RAM, 1.44MB flappy, 60MB hard disk, internal madem, AC adapter, carrying case, DOS 5.0 $3395
ACCESSORIES: 2MB RAM $199, additianal battery $89, external 1.2MB flappy $279
Reader service no. 735

Las Vegas
Convention
Center

COMPUTER
SHOPPER
BEST BUY
AWARDS

GATEWAY2000

GATEWAY 2000 – IT'S A CLEAN SWEEP!

For the first time in the six-year history of *Computer Shopper* magazine's Best Buy competition, one company swept all of the awards in the desktop PC categories. At COMDEX/Fall '91 in Las Vegas, Gateway 2000 was awarded Best Buy honors for 286, 386SX, 386 and 486 systems.

"What's most meaningful about these awards," said Gateway 2000 President Ted Waitt, "is they are given by the readers of *Computer Shopper*, people who are buying and using PCs in the real world."

Shopper readers voted in record numbers: 15,000 people cast over 100,000 votes for products in 27 hardware and software categories. The vote on desktop PCs was a decisive victory for the Midwestern firm customers call the "cow company."

According to *Computer Shopper*, the Best Buy Awards have come to symbolize the best in service, quality, performance, support and product selection. This combination gives you the best value on the market.

It's really no surprise Gateway 2000 systems were singled out as Best Buys since Gateway sells more computers through the direct channel than any other PC manufacturer. This in itself is testament to the value Gateway 2000 offers. One look and you'll be convinced, too.

Gateway's the one with the best prices on quality, fully-loaded, high-performance systems. Gateway's the one with the award-winning service organization that'll take good care of your system. Gateway's the one that's going to be here for you. And Gateway's the only one with a great PC that comes in a cow-spotted box suitable for use as a rec room end table.

Call a Gateway 2000 sales representative today for all the details on the Best Buy system we'll build just for you.

GATEWAY2000

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Our thanks to Gateway's own Semi-Gold Dancers played by employees from departments throughout the company.

THE LINE THAT SWEPT 'EM AWAY

16 MHZ 286

- 80286 Processor
- 2MB RAM
- 1.2MB 5.25" Drive
- 1.44MB 3.5" Drive
- 40MB 17ms IDE Drive with 32K Cache
- 16-Bit VGA with 512K
- 14" Crystal Scan 1024 Color VGA Monitor
- 1 Parallel/2 Serial Ports
- 1 PS/2 Mouse Port
- 124-Key AnyKey™ Keyboard
- MS DOS® 5.0

$1345

16 MHZ 386SX

- Intel® 80386SX Processor
- 2MB RAM
- 1.2MB 5.25" Drive
- 1.44MB 3.5" Drive
- 40MB 17ms IDE Drive with 32K Cache
- 16-Bit VGA with 512K
- 14" Crystal Scan 1024 Color VGA Monitor
- 1 Parallel/2 Serial Ports
- 1 PS/2 Mouse Port
- 124-Key AnyKey Keyboard
- Microsoft® Mouse
- MS DOS 5.0
- MS Windows™ 3.0

$1445

20 MHZ 386SX

- Intel 80386SX Processor
- 32K Cache RAM
- 4MB RAM
- 1.2MB 5.25" Drive
- 1.44MB 3.5" Drive
- 80MB 17ms IDE Drive with 32K Cache
- 16-Bit VGA with 512K
- 14" Crystal Scan 1024 Color VGA Monitor
- 1 Parallel/2 Serial Ports
- 1 PS/2 Mouse Port
- 124-Key AnyKey Keyboard
- Microsoft Mouse
- MS DOS 5.0
- MS Windows 3.0

$1745

25 MHZ [illegible]

- [illegible]
- 4MB RAM
- 1.2MB 5.25" Drive
- 1.44MB 3.5" Drive
- 80MB 17ms IDE Drive with 32K Cache
- 16-Bit VGA with 1MB
- 14" Crystal Scan 1024NI Color VGA Monitor
- 1 Parallel/2 Serial Ports
- 124-Key AnyKey Keyboard
- Microsoft Mouse
- MS DOS 5.0
- MS Windows 3.0

$1895

33 MHZ 386

- Intel 80386 Processor
- 64K Cache RAM
- 4MB RAM
- 1.2MB 5.25" Drive
- 1.44MB 3.5" Drive
- 200MB 15ms IDE Drive with 64K Multi-Segmented Cache
- 16-Bit VGA with 1MB
- 14" Crystal Scan 1024NI Color VGA Monitor
- [illegible] Ports
- [illegible]

$2395

33 MHZ 486

- Intel 80486 Processor
- 64K Cache RAM
- 8MB RAM
- 1.2MB 5.25" Drive
- 1.44MB 3.5" Drive
- 200MB 15ms IDE Drive with 64K Multi-Segmented Cache
- 16-Bit VGA with 1MB
- 14" Crystal Scan 1024NI Color VGA Monitor
- [illegible]

[illegible]

- Intel 80486 Processor
- 128K Cache RAM
- 8MB RAM
- 1.2MB 5.25" Drive
- 1.44MB 3.5" Drive
- 340MB 15ms SCSI Drive with 128K Multi-Segmented Cache
- 32-Bit EISA SCSI Controller
- 16-Bit VGA with 1MB
- 14" Crystal Scan 1024NI Color VGA Monitor
- [illegible]

BEST BUYS

- Get our 33 MHz 386 system, same configuration as listed, with a 120MB IDE hard drive instead of the 200MB drive.

$2145

- Same features as our 33 MHz 486 system except this machine has 4MB RAM instead of 8, and a 120MB IDE hard drive instead of the 200MB drive in our standard configuration.

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INCLUDED WITH EVERY SYSTEM:

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Sales Hours: 7am-10pm Weekdays, 9am-4pm Saturdays (CST)
Service Hours: 6am-Midnight Weekdays, 9am-2pm Saturdays (CST)

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intel inside

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Remote Communications Software

The Next Best Thing

Need a file from the office PC while you're at home? Want to query the company data base when you're on the road? With one of these seven remote programs, two modem-equipped PCs can act as one. **Judy Heim**

MARC ROSENTHAL

YOU'RE SITTING AT HOME on a Sunday night working on a report due the next day, when you realize that you left a crucial worksheet at the office. You could waste an hour or so driving on the freeway or wake up in the wee hours to hit the office early. But if you had a remote communications package, you could dial in with a modem and pick up the file on the spot. And while you were at it, you could load your office scheduling program to check the next day's appointments.

With some of the latest remote programs, such as our Best Buy from Norton-Lambert—Close-Up—you can even use your home 286 to run enhanced-mode Windows on your office 386. You'll need a 9600-baud modem for reasonable Windows performance, but with high-speed models priced as low as $400 these days, this hurdle is no longer a major one.

If you travel with a laptop or notebook, a remote package can bring your office PC right into your hotel room, giving you access to data and programs that could never fit on your laptop. Even if your laptop hard disk is big enough, this arrangement lets you avoid the confusion of keeping dual sets of programs and files.

If training or supporting employees is part of your job, you can use a remote package to "sit" at the same computer and show them how to fix problems rather than having to visualize descriptions over the phone. Everyone from architects to financial analysts to screenwriters can use remote packages to collaborate with partners in distant cities, examining and editing the same file while "talking" to each other through a pop-up chat window.

You can also use remote packages for file transferring, and most offer limited terminal features for dialing into a BBS or on-line service. No remote program delivers the communications savvy of a Procomm Plus, and if you need to call in only to pick up files, Procomm and other standard communications packages offer simple

EXECUTIVE SUMMARY

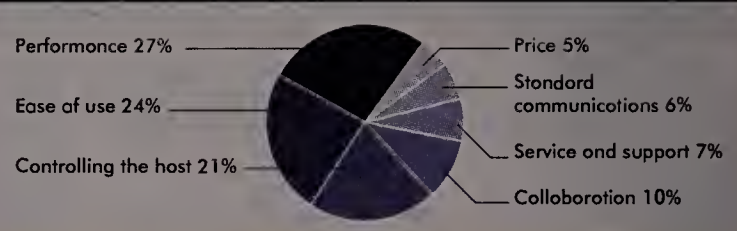
Close-Up Wins Remote Honors

Close-Up is fast, easy to use, and reliable. What else do you need in a remote package?

PC WORLD BEST BUY

Close-Up Dual Pack 4.0 earns its Best Buy by virtue of lightning speed, an easy interface, reliable error handling, and a complete set of tools for controlling one computer from another and collaborating with a partner. It's also the only package that can run Windows reliably from afar—even in extended mode. Runner-up **Remote2** isn't quite as fast, and its toolbox is smaller, but it is perfectly dependable with graphics.

Key Buying Issues: Percentage of Importance



Excellent ★★★★
Good ★★★
Fair ★★
Poor ★

	Reader service number	Performance	Ease of use	Controlling the host	Collaboration	Service and support	Standard communications	Price	Overall value
Carbon Copy Plus 6.0	671	☆☆½	☆☆½	☆☆	☆☆☆½	☆☆½	☆☆	☆☆☆½	★★½
Central Point Commute 1.1	673	☆½	☆½	☆☆	☆☆	☆☆	½	☆☆☆☆	★★
Close-Up Dual Pack 4.0	672	★★★★	★★★★	★★★★	★★★★	★★	★★★	★★★½	★★★★
CO/Session 6.0	674	☆☆☆½	☆☆½	☆½	☆☆	☆☆☆½	☆½	☆☆☆½	★★½
pcAnywhere 4.03c	675	½	☆☆	☆½	☆☆☆☆	☆☆	☆	☆☆☆½	★½
Remote2 2.1	676	☆☆☆	☆☆☆☆	☆☆½	☆☆½	☆☆☆½	☆☆½	☆☆☆½	★★★
Takeover Lite 2.0	677	☆½	☆½	☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆½	★★

Overall value is calculated by multiplying each category rating by the category's weight percentage, summing the results, and rounding to the nearest half number.

Buying Smart: Finding Remote Quality

PERFORMANCE

Running software remately is slow: Imagine putting one modem connection between your keyboard and computer and another between yaur computer and your monitor, and you'll understand why. Still, you dan't want to wait forever. If yau regularly access graphics applications remotely, a 9600-baud modem is a must. Although all aur speed tests were run at 2400 baud, we also made sure each program worked with 9600-baud modems.

When calculating performance ratings, we weighted our WordPerfect Mixed Use Test most heavily. This test simulates a typical remote sessian by loading and editing a file and switching between text and graphics modes. Although the WardPerfect test included text and graphics screen painting, we also tested them separately. If you plan to spend more time swapping files than running software remotely, check out our File Transfer benchmarks.

EASE OF USE

No matter how well organized the menus, a remote program that keeps crashing your favorite applicatian isn't easy to use. Above all, you need a dependable program, relatively free of bugs, that's capable of catching errors before they do any harm. Of course, well-designed menus and a good manual are also important.

CONTROLLING THE HOST

Yau'll want the RAM-resident host program to take up as little memary as possible so the software yau'll be running remately will have plenty of room to play. If you can trim unneeded features from the hast program to free up more RAM, so much the better.

If you work with graphics, make sure your pragram can handle your systems' graphics standards—especially if more than one standard is invalved. Remote programs that can successfully translate an image from a VGA host to an EGA guest are rare.

Software support is also important. Look far a program that will let you control the mouse and run Windows applications remotely (preferably in enhanced made). If you plan to transfer files on a regular basis, look for a program that can transfer files in the background and automate the transfer pracess. All the programs offer built-in error checking, and mast let you request retransmission if a screen arrives in bad shape.

All the programs offer password pratectian, but if security is important, you might also consider one that notes failed log-in attempts. If mare than one person will be dialing inta the host PC, look far a package that lets you restrict the files that callers can transfer as well as the directories and applications they can enter. Virus screening is always a plus when you're swapping files.

COLLABORATION

Remote programs are great tools for collaborative work. All these programs have pop-up chat boxes for exchanging typed comments while working, but a vaice/data switch will also let you talk to each other over the same phone line.

If yau're going to train peaple over a remate cannection, look for a program that records screens and keystrakes sa that you can play them back. And if you can blank the other PC's screen, you'll be able to shield computerphobes fram the harrors of batch files and examine sensitive data you'd rather they didn't see.

SERVICE AND SUPPORT

Because setting up remote software is camplex, figure on at least ane or two calls to the vendor's tech suppart department. To test technical support, we called each vendor three times, asking questions of varying technical camplexity and noting the timeliness and accuracy of the answers. We alsa factored in support policies such as hours, toll-free lines, and BBS and fax suppart.

STANDARD COMMUNICATIONS

If you don't already own a standard communicatians pragram, you'll appreciate a remote package you can use to call a BBS or other on-line service. You'll want a good selectian af pratocols far transferring files outside of a guest/hast situation. Mast an-line services expect to talk only to a terminal, sa your saftware must be able to emulate one.

The ability to transfer files in the background is a plus. But just because a program can manage background transfers while talking to its remate caunterpart doesn't mean it can do the same thing on line to CampuServe. Finally, macros and script support simplify logging an ta a service, while a learn made makes creating thase macros and scripts more convenient.

FEATURES EVALUATION

Close-Up and Personal

With Best Buy Close-Up, you won't feel remote. Its dependable video translations and solid Windows support make the remote PC feel as personal as possible.

● Yes
○ No
◒ Deficient

	Carbon Copy Plus 6.0	Close-Up Dual Pack 4.0	Central Point Commute 1.1	CO/Session 6.0	pcAnywhere 4.03c	Remote2 2.1	Takeover Lite 2.0
Standard features							
List price[1]	$199	$199	$129	$195	$179	$195	$179
Tap madem speed (baud)	9600	115,000	115,000	115,000	115,000	38,400	57,600
LAN versian available	●[2]	●	●	●	●	●	○
Controlling the host							
RAM used by hast versian	60K	34K–80K	15K–60K	5K–103K	20K	55K–65K	77K
Trim unused hast features ta free RAM	○	●	●	●	○	●	●
RAM used by guest versian	170K	153K	15K–60K	125K	60K–77K	128K	275K–480K
EGA-ta-VGA graphics translatians	◒[3]	●	◒[3]	◒[3]	○	●	●
VGA-ta-EGA graphics translatians	◒[3]	●	◒[3]	◒[3]	○	●	◒[3]
Remate Windaws suppart	○	●	●	●	○	◒[4]	○
Remate mause suppart	○	●	◒[3]	◒[5]	○	○	◒[3]
Accepts calls fram ather saftware	○	●	○	○	○	●	○
Autamated file transfers	●	●	●	◒[6]	◒[3]	●	●
Backgraund file transfers	●	●	○	●	●	○	◒[7]
Script language	○	●	●	◒[6]	◒[3]	○	●
Error checking	●	●	●	●	●	●	◒[8]
Repaints screen on cammand	●	●	●	◒[9]	●	○	●
Caller lag	●	●[7]	●	●[7]	●	●	○
Restricts file transfer rights	●	●	●	●	○	●	●
Restricts callers ta specified directaries	●	●	○	●	○	●	●
Restricts callers ta specified applicatians	○	●	○	●	◒[10]	●	●
Built-in virus pratectian	○	●	●	○	○	○	○
		BEST BUY					

[1] Price includes both guest and hast versians.
[2] Included with modem versian.
[3] *PC World* could nat get this feature ta work acrass all platfarms.
[4] In Real mode only; na mouse ond limited applicatian suppart.
[5] Only ane PC ot o time can cantral mause.
[6] Extra-cost aption.
[7] On call-in PC anly.

remote host modes that will do the trick. But if you need to run applications from afar, a full-fledged remote package is the only way to go.

You Can't Always Get There From Here

When you stop and think about it, remote communication is an amazing feat—when it works. Tiny incompatibilities you'd never notice in one computer can become hulking monsters when you try to control it from another.

Remote communications packages usually consist of two programs—a small RAM-resident program for the host PC that you wish to control, and a more substantial one for the guest PC (sometimes called the call-in or remote) that will control it. To discover which of the seven top packages are fastest, easiest, and most dependable, we rigorously tested them by running one computer from another, collaborating on shared files, sending files back and forth, and dialing into BBS's.

Our testing uncovered problems with several of the packages. Whereas general communications programs usually work with virtually any modem—even that perpetually hissing pink thing you bought for $39.95—remote software can be thrown into blithering disarray by anything from an unusual BIOS to an outdated mouse driver. It's not at all surprising that

	Carbon Copy Plus 6.0	Close-Up Dual Pack 4.0	Central Point Commute 1.1	CO/Session 6.0	pcAnywhere 4.03c	Remote2 2.1	Takeover Lite 2.0
Collaboration							
Voice/data switch	●	●	○	●	●	◑[11]	●
Playback	●	●	○	●	●	○	●
Blank remote PC screen	●	●	○	●	●	●	●
Service and support							
Daily support (hours)	11	10	11	10.5	8	12	8
Unlimited free support	●	●	●	●	●	●	●
Toll-free support number	○	●	○	●	○	○	○
Weekend support	○	●	○	○	○	○	○
BBS support	○	●	●	●	●	●	●
Fax support	●	●	●	●	●	●	●
Other extra-cost training or support	○	●	○	○	○	○	●
Standard communications							
Error-checking protocols							
XMODEM	●	●	○	●	●	●[12]	●
YMODEM	●	●	○	○	○	●[12]	●
ZMODEM	○	●	○	○	○	○	●
CompuServe B	○	●	○	○	○	●[12]	●
Kermit	●	●	○	○	○	○	●
Terminal emulations							
TTY	○	●	○	●	●	●[12]	●
DEC VT-100/102	●	●	○	◒[3]	○	●[12]	●
IBM 3101	●	●	○	○	○	○	●
Terminal-mode background transfers	○	●	○	○	○	○[12]	◒[13]
Capture screen snapshots	●	●	○	●	●	●[12]	●
Terminal macros/script support	●	●	○	◒[14]	○	●[12]	●
Learn mode for recording log-ons	○	●	○	○	○	●[12]	●
		BEST BUY					

[8] Doesn't work properly when compression is enabled.
[9] Repaints from RAM; doesn't retransmit image.
[10] Can restrict caller to one application, which loads at log-on.
[11] Can switch only from data to voice.
[12] In separate, bundled program.
[13] Not enough memory to run other applications.
[14] Can automate log-ons, but full script language is extra-cost option.

as our tests proceeded, dependability emerged as an important factor in our Ease of Use category.

Five programs promised to send graphics screens from a VGA host to an EGA guest, but only DCA's *Remote2* did it correctly on all our platforms. Several makers brag about remote mouse support, but only Norton-Lambert's *Close-Up* proved friendly with every rodent. Of the three programs that promised to support *Windows* in 386 enhanced mode, only one—*Close-Up* again—worked reliably and at a reasonable pace.

Dependable *Windows* and remote mouse support weren't the only qualities that earned Norton-Lambert's *Close-Up* its Best Buy; the program also sports beautifully fast screen painting and an interface that's fun to use. Coming in second is Digital Communications' *Remote2*—not as fancy a program as *Close-Up* but the best at catching errors and handling non-*Windows* graphics. Your chances of being satisfied with either of these products are anything but remote.

Judy Heim is a contributing editor and Eric Brown senior reviews editor for PC World.

For more information about all the products in this article, circle reader service no. 902.

Carbon Copy Plus 6.0

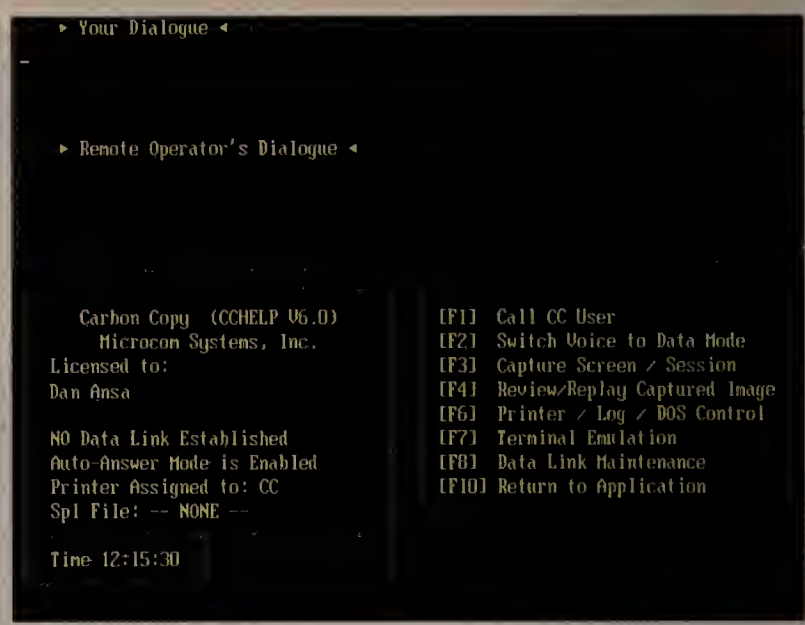
PROS: Comes with LAN version

CONS: No remote mouse or Windows support, top modem speed 9600 baud

Microcom's *Carbon Copy Plus* is the only program here that comes with a separate LAN version in the box. Also, thanks its large installed base, the program is a good choice if you'll be working with people outside your company. But for graphics applications, this program is iffy.

Carbon Copy is very easy to set up and at first glance seems easy to use. One simple control screen leads you to every option and even doubles as a chat window. But the manual is spare, and on-line help is almost nonexistent. Some jobs are needlessly clumsy—for instance, you transfer files through a command line rather than a menu.

Graphics are a real problem. We found *Carbon Copy* prone to crash when a VGA host sent graphics to an EGA guest. Even when both systems had VGA, graphics occasionally sent *Carbon Copy* into a loop, repainting the same screen over and over, with different colors on each try. Although the program performed passably in most of our speed tests, it was fairly slow at repainting a graphics screen. What's more, its 9600-baud limit means you can't increase your modem-to-port speed for maximum performance.



You can do almost everything in Carbon Copy from one screen, but compatibility problems abound.

You can use the guest version of *Carbon Copy* for standard communications, but you probably won't want to. One more problem: You must exit the program to edit the phone book.

Carbon Copy Plus 6.0 doesn't support Windows, but a *Windows* version will be available by the time you read this (see "New Windows on *Windows*"). If you're a DOS user, consider *Carbon Copy* only if you plan to stay in text mode, especially if you need to work with other *Carbon Copy* users.

New Windows on Windows: Carbon Copy for Windows and pcAnywhere 4.5

Eric Brown

Only six months ago, you simply couldn't do it. But recently, several remote communications vendors have cracked one particularly tough nut: running *Windows* from a distant PC. As the accompanying reviews note, however, only *Close-Up* has really got the trick down, performing reliable remote *Windows* (in enhanced mode) at a reasonable pace. But by the time you read this, Norton-Lambert should have some fresh competition at harnessing enhanced-mode *Windows* from afar: *Carbon Copy for Windows* and *pcAnywhere 4.5*.

Unlike *Close-Up*, a DOS package that lets you access both DOS and *Windows* applications, the $199 *Carbon Copy for Windows* is a *Windows* program that also requires *Windows* on the other end. You can access any DOS application you can bring up in a window, but you can't exit to DOS and remotely run a DOS application full screen. A VGA guest can access an EGA host and vice versa, though when an EGA guest accesses a VGA host, the guest has to scroll to see the whole screen. The program supports built-in modem compression, so you can get tolerable performance from a 2400-baud modem running MNP-5 or V42.bis compression, and it now supports the faster 14,400-baud V32.bis modems.

pcAnywhere 4.5 is an upgrade to the DOS-only package reviewed in the accompanying article. Reflecting the efforts of Symantec's Norton team (Symantec recently acquired the $179 package), the new program boasts better speed and reliability—over 90 modems are now supported, and setting up a communications session requires fewer steps. A new script language can automate file transfers, and standard communications features have been boosted with the addition of YMODEM and Kermit transfer protocols and new terminal emulations. A new LAN version, *pcAnywhere/LAN 4.5*, also includes *Windows* support.

Close-Up Dual Pack 4.0

PROS: Great Windows and mouse support, lightning speed, good error handling

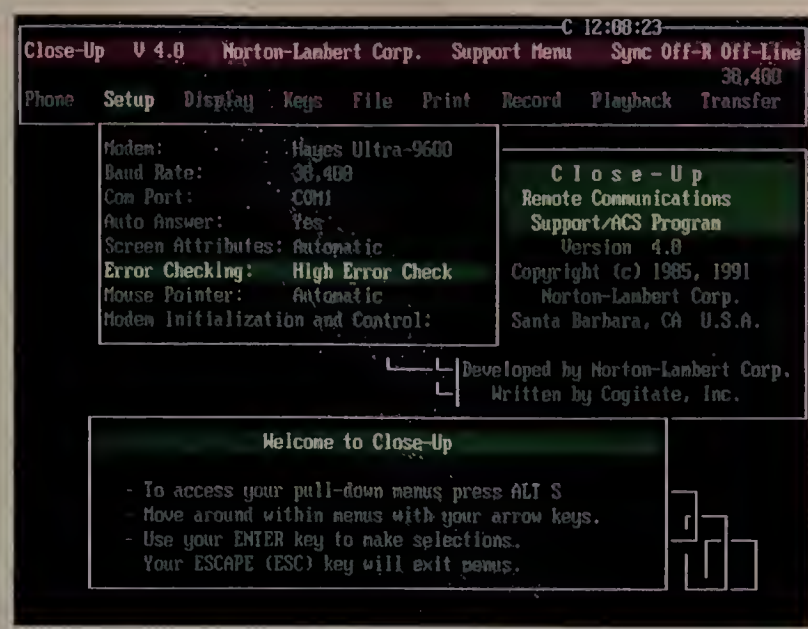
CONS: Slow technical support

Norton-Lambert's *Close-Up* is the fastest, easiest, and the most reliable program we looked at in this roundup. About the only important job it can't do is transmitting graphics images from a VGA host to an EGA guest, and unlike a lot of programs, *Close-Up* made no claims that it could.

Close-Up is easy to set up and use—only two programs are included (one for the guest and one for the host), with no family of little EXEs to load and unload as you go from one job to another. Every tool you need is located in the host or guest pulldown menu bar.

Close-Up is the undisputed speed champion, coming in first in three out of four tests and running a close second in the other. In the complex *WordPerfect* Mixed Use test, it beat second-place winner *Remote2* by a factor of nearly 4 to 1.

The program's remote handling of *Windows* is simply dazzling—as long as both PCs use the same graphics standard and both modems run at 9600 baud. You can stack windowed DOS applications and cut and paste between them. If you run *Close-Up* in *Windows* on the guest, you can even cut and paste between the two computers.



When you load Close-Up, a friendly 'Welcome' screen helps you get started, and top speed and good error handling keep you going.

Although the package lacks the variety of terminal emulations and file-transfer protocols that *Takeover Lite* offers for standard communications, it does have the best scripting language of the bunch.

Norton-Lambert needs to beef up support—we spent a lot of time on hold—but there's really no contest. *Close-Up* is the Best Buy for just about anyone who needs to go remote.

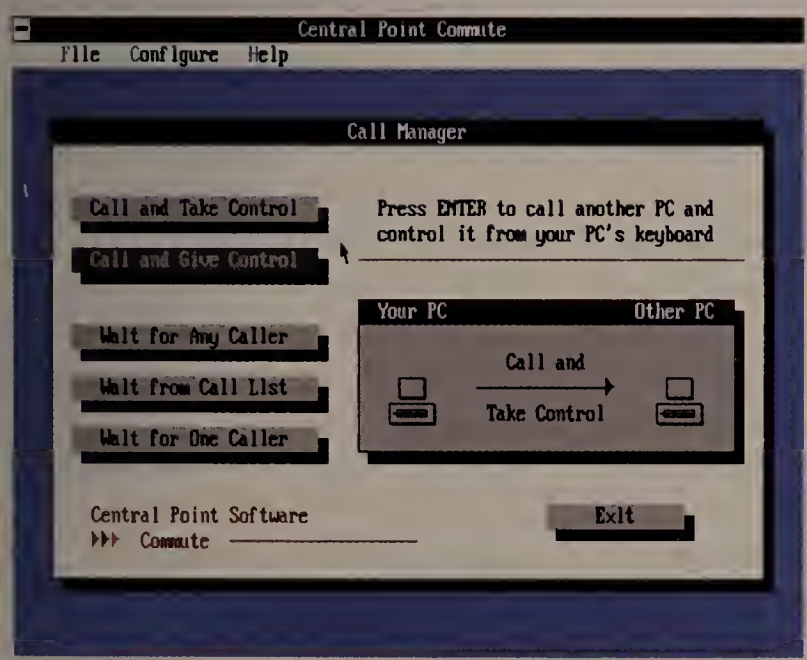
Central Point Commute 1.1

PROS: Low price, spiffy user interface

CONS: Slow, undependable graphics transmissions, no conventional communications

If you own Central Point's *PC Tools Deluxe 7.x*, you've already got a copy of *Commute*, and if you rarely need remote links, that copy will probably suffice. But you should think twice about buying *Commute* on its own, even at its low $129 price.

With its plain-English pulldown menus, *Commute* is a breeze to set up, and as long as your needs are simple, it's pretty easy to use. But the disorganized, incomplete documentation turns any complex task into a real hassle.



You'll feel right at home with Commute's point-and-shoot interface, but the program's on-line behavior is undependable.

Commute proved to be totally undependable for certain graphics tasks. When we tried running *Windows* or another graphics application from a VGA host on an EGA guest, everything went monochrome. When an EGA host tried to send graphics to a VGA guest, *Commute* just plain died on both ends. Even when both PCs used the same video standard, *Commute* occasionally froze up when sending graphics screens.

If you do get *Windows* running with *Commute*, you'll need plenty of patience—even at 9600 baud, the going is slow. What's more, you won't be able to run DOS applications under *Windows*, and if you and your partner call up *Commute*'s chat box to talk to each other, your end of the conversation is as likely to end up in your partner's *Excel* worksheet as in the other chat box.

Windows isn't the only stumbling block. Mouse support is a definite maybe—the program just can't control some mice from a distance. *Commute* won't help you switch from voice phone to modem when you need to handle your phone manually.

PC Tools users may find *Commute* acceptable for occasional remote access to DOS applications. But if you're serious about going remote, check out *Close-Up*.

Co/Session 6.0

PROS: Very fast, great user interface, very good technical support

CONS: Graphics hang-ups, rocky Windows support, on-line menu limitations

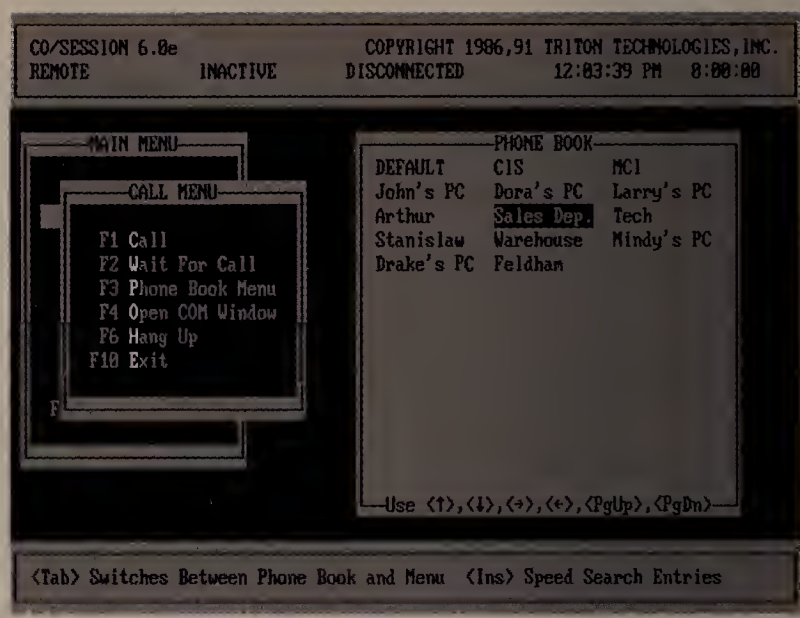
Next to *Close-Up*, Triton Technologies' *Co/Session* has the best user interface in the group. But you'll find *Co/Session*'s *Windows* support and graphics translations somewhat unreliable.

The program's menus are clearly written and easy to follow. Both sides of Co/Session are memory resident, with toggle-up screens that appear either on line or off.

The program has many curious limitations, however. It boasts remote mouse support, but only the guest user can control the mouse on line. If you're running Windows or another graphics program, you can't bring up on-line menus or chat boxes. Furthermore, when you tell the guest program to refresh the screen, it does so from memory, with dubious results.

Graphics applications gave *Co/Session* problems during our tests. Going from a VGA host to an EGA guest turned the screen into sixties poster art. Even when both systems had VGA, *Co/Session* botched spreadsheet charts. The bundled *Windows* video driver—needed for running *Windows* with *Co/Session*—sometimes sent the screen into a frenzy when we tried to run a windowed DOS program, even if *Co/Session* wasn't running.

If you phone Triton with these problems, though, at least you'll find help. Every time we called, we got through to a technician right away.



Co/Session's function key–oriented interface makes menu selection easy no matter where you are in the program.

A maintenance release, version 6.01, shipped too late to be included in this roundup, so some of the bugs may be fixed by the time you read this. Judging from version 6.0, however, *Co/Session* can be recommended only for users of text-based programs who plan to do a lot of file transfers.

pcAnywhere 4.03c

PROS: Low memory usage on host

CONS: Extremely slow, no graphics translation

Symantec acquired *pcAnywhere* last fall and is currently working on a major upgrade. The new owners have a long way to go, however, if they hope to turn *pcAnywhere* into a winner.

This screen may look simple, but making a selection will almost certainly take you to another menu . . . then another, and another.

The program's menus are simple and self-explanatory, but wading through them is laborious. For instance, to enter a number into the phone book, you must pick through four menus. In contrast, this process takes only one step in *Close-Up*.

The program is unacceptably slow. In our *WordPerfect* Mixed Use test, *pcAnywhere* took seemingly forever—54 minutes just to complete a series of tasks that most of its competitors handled in less than 10 minutes. This snail's pace makes *pcAnywhere* a questionable choice for cooperative work, despite the program's top-notch collaboration features.

Symantec does not claim that its *pcAnywhere* can translate graphics screens from a VGA host to an EGA guest, but we found that even VGA-to-VGA graphics occasionally caused system crashes. What's more, this program blacks out both screens for a long stretch while transferring graphics—and since there's no 'please wait' message, you're likely to assume your connection is lost. Even text-based programs aren't immune to problems—on one of our setups, *WordPerfect* screens had black lines running across them.

The program is extremely weak at standard communications. You're limited to XMODEM file transfers and TTY terminal emulation. Moreover, the scripts didn't always work—each attempt at automating file transfers resulted in an error message that no one at Symantec could diagnose.

The upcoming *pcAnywhere 4.5*, expected by the time you read this, may prove to be a contender (see "New Windows on Windows"), but we can't recommend the current version.

Remote Computing Reaches Out to LANs

If you want to make LAN administrators, MIS directors, or corporate trainers happy, give them a LAN remote package—it will shave hours off their work week by letting them train users and examine misbehaving PCs from the comfort of their own office. Most remote communications vendors also sell LAN programs that let one network workstation control another. These are seldom functionally identical to the similarly named modem packages.

Increasingly, LAN remote packages are serving as more than administrative utilities. Anybody collaborating on a project will find them useful. If you and your boss are arguing over next year's budget, for instance, the two of you can use a LAN remote program to examine and change the same worksheet, each seeing immediately how the other's numbers will work.

When buying a LAN package, you need to consider several issues that don't come into play with remote modem packages. First is compatibility: If you use Novell NetWare, you'll have no trouble finding a remote program that runs on your LAN. But if you use *LAN Manager, Lantastic,* or other LANs, you'll need a program that supports the NETBIOS network protocol.

If you'll be training users, look for a program that lets you daisy-chain PCs so you can demonstrate techniques on more than two computers at a time. If technical support is part of your plan, you'll want built-in LAN diagnostic tools that can tell you, among other things, which programs are in memory. And if you want to dial in from an off-site PC to a network workstation, make sure your LAN remote package works with your modem version.

One hazard of LAN remote programs is their potential for administrative snooping. Luckily, all the programs listed here can be set up to notify a potential host before a guest "enters" the host's computer, so the host can decide if the guest is welcome. If it's up to you, make sure this option is turned on; otherwise, be careful what you type.

	Carbon Copy Plus LAN	Close-Up LAN 2.5	Co/Session LAN II 6.0	LAN Assist Plus	LANSight 2.1	Netremote + 4.11	pcAnywhere /LAN 4.0	R2 LAN 2.0	Remote Access 2.0
Price	$199[1]	$795	$195	$295	$395	$350	$645	$795	$395[2]
NETBIOS network protocol support	Y	Y	N	Y	N	N	Y	Y	Y
Wide area–network support	Y	Y	Y	N	N	Y	N	N	Y
Daisy-chain support	Y	Y	N	Y	N	Y	N	N	Y
LAN diagnostic tools	N	N	N	N	Y	Y	N	N	N
Works with modem remotes	Y[3]	Y	Y	Y[4]	Y	Y	Y[3]	Y	Y
Remote graphics translations (VGA,EGA)	Y	N	Y	Y	Y	Y	Y	Y	Y
Remote Windows support	Y	N	Y	Y	Y	Y	N	N	Y
Remote mouse support	Y	N	Y	N[5]	Y	Y	N	N	N
Automated file transfers	N	N	Y	Y	Y	N	Y	Y	N[6]
Remote printer support	N	Y	Y	N	Y	N	Y	Y	N[6]
Chat window	Y	Y	Y	N	Y	N	Y	Y	N[6]
Password protection	Y	Y	Y	Y	Y	Y	Y	Y	Y
Restricts file transfer rights	N	N	Y	N	N	N	N	Y	N
Restricts users to specified directories	N	N	Y	N	N	N	N	Y	N

[1] Included with modem version.
[2] Windows and OS/2 versions available at additional cost.
[3] With vendor's product only.
[4] With Co/Session only.
[5] Works only with Windows programs.
[6] Extra-cost option.

For more information about all products in this sidebar, circle reader service no. 904.

WHERE TO BUY

Carbon Copy Plus LAN
Microcom Inc.
800/822-8224
Reader service no. 678

Close-Up/LAN 2.5
Norton-Lambert Corp.
805/964-6767
Reader service no. 679

Co/Session LAN II 6.0
Triton Technologies, Inc.
800/322-9440
Reader service no. 680

LAN Assist Plus
Fresh Technology Co.
800/545-8324
Reader service no. 681

LANSight Support
Intel Corp.
5200 N.E. Elam Young Pkwy.
Hillsboro, OR 97124
Reader service no. 682

Netremote+ 4.11
Brightwork Development
800/552-9876
Reader service no. 683

pcAnywhere/LAN 4.0
Symantec Corp.
800/441-7234
Reader service no. 684

R2LAN 2.0
Digital Communications
800/348-3221
Reader service no. 685

Remote Access 2.0
Shoni Computer Ltd.
213/204-0111
Reader service no. 686

Remote2 2.1

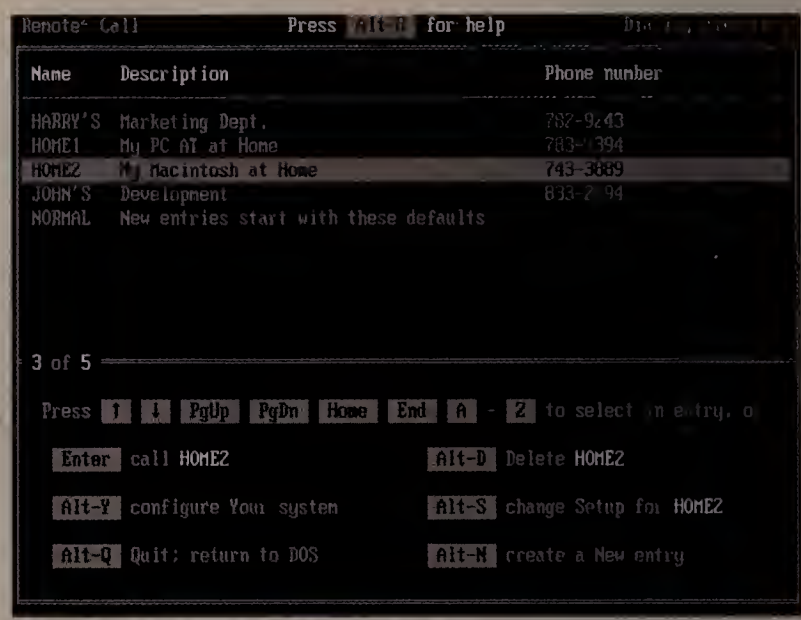
PROS: Easy to use, top graphics translation

CONS: No remote mouse, weak on Windows

DCA's *Remote2* stands out by way of its invincible graphics handling—nothing we tried could bring it down. This is the only program in the roundup that can send a graphics image from a VGA host to an EGA guest without problems. Its *Windows* support is weak, it's no friend to mice, and it doesn't offer many extras, but for mouseless DOS users, *Remote2* makes a good choice.

The program's interface isn't quite as well designed as *Close-Up*'s, but *Remote2*'s simple setup, first-rate manual, and exemplary error handling make it even easier to use. The intuitive interface, based on a dialing directory, is particularly handy if you have many remote partners.

Remote2 has its limits. It supports *Windows* only in Real mode and mouseless, and we had trouble even then. The program has no script language, although you can automate file transfers with batch files. And since its standard communications abilities come in a separate, bundled program, you lose the convenience of calling up CompuServe direct from *Remote2*. Finally, the voice/data switch is actually a data/voice switch—you can go in only one direction.



Remote2 easily translates graphics between VGA and EGA. Its dialing directory gives you quick access to frequently called phone numbers.

On the upside, you can use a conventional communications program as the guest when *Remote2* is the host. Although this method limits your options, it can prove useful if you need to limit the number of programs on your laptop or notebook.

When we called DCA, we consistently got responsive, polite answers. We sometimes waited on hold for a few minutes, but we got great help.

Remote2 has limitations, but its graphics ability, error handling, and dependability make it a great choice for non-*Windows* users.

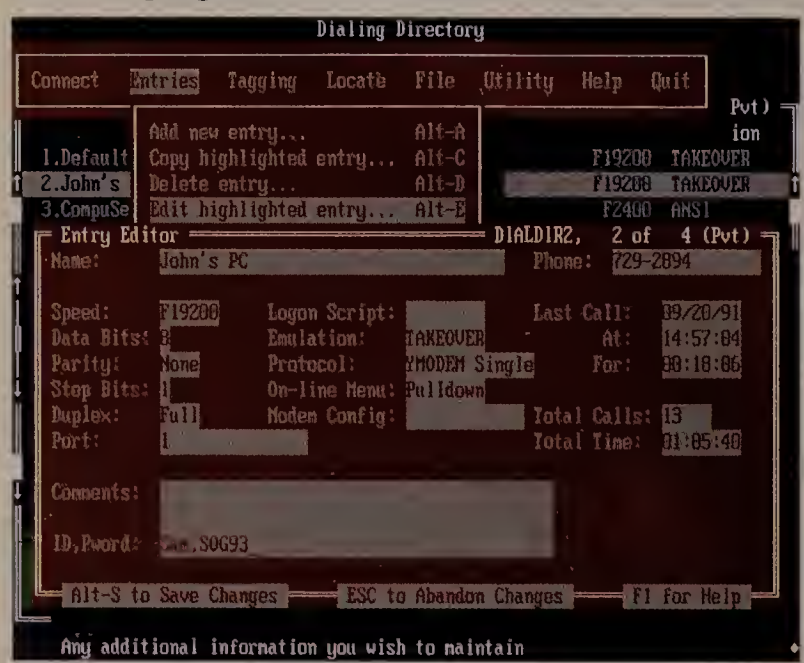
Takeover Lite 2.0

PROS: Good standard communications

CONS: Messy interface, poor error handling, slow file transfers

A stripped-down version of *Takeover II*, *Takeover Lite* doesn't include the bigger program's all-purpose communications program (which is also sold separately as *Mirror III*). *Takeover Lite* still comes with the most complete standard communications capabilities in the roundup, but as a remote program, it's unexceptional.

Takeover's menus are cramped and often hard to fathom, and the host user can't access the menus at all while on line, even to launch file transfers or hang up the phone. Lack of access to menus is a problem in collaborative situations where both users share responsibilities equally—a shame since *Takeover*'s collaborative features are otherwise quite good.



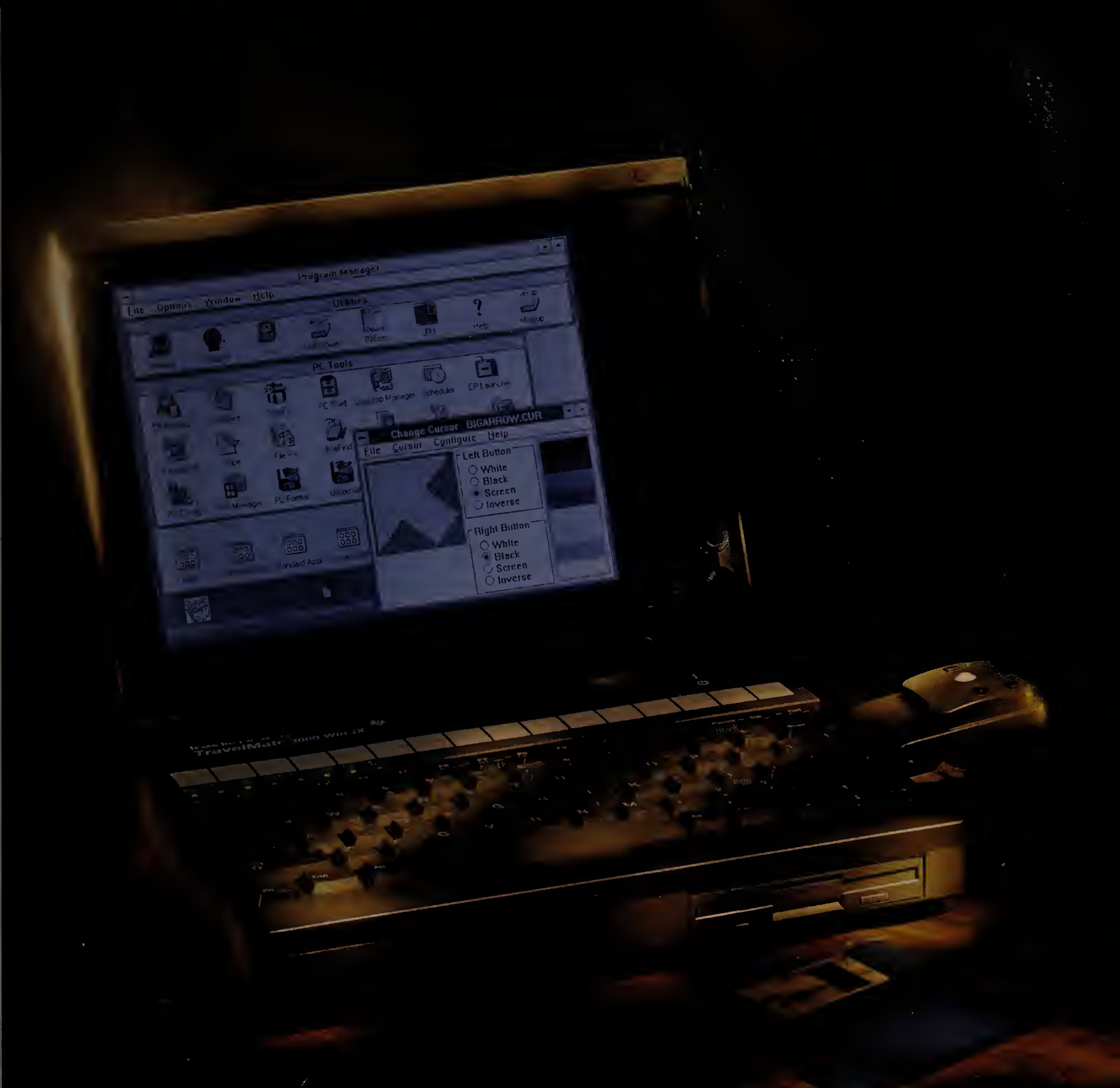
Takeover Lite's guest program has overcrowded, incomprehensible menus. When the host program is on line, it offers no menus at all.

Takeover proved undependable when handling graphics screens and mice. We couldn't make VGA-to-EGA transfers work on all platforms, and even VGA-to-VGA graphics caused crashes in one of our test platforms. Remote mouse support proved totally dependent on the pedigree of the mouse.

Performance was mediocre in general, and in our file transfer test *Takeover Lite* came in dead last—even *pcAnywhere* beat it. In theory, you can transfer files in the background, but the guest program's 480K RAM appetite gets in the way.

Takeover Lite offers error checking and compression, but when we tried using the two features together, our guest screen turned into something from The Twilight Zone. SoftKlone's tech support blamed the phenomenon on our "unsupported" modem, but the Hayes Ultra we used was listed as an installation option.

If you're looking for an inexpensive communications program with some remote capabilities, you might want to consider *Takeover Lite*; but even for this purpose, better options exist.



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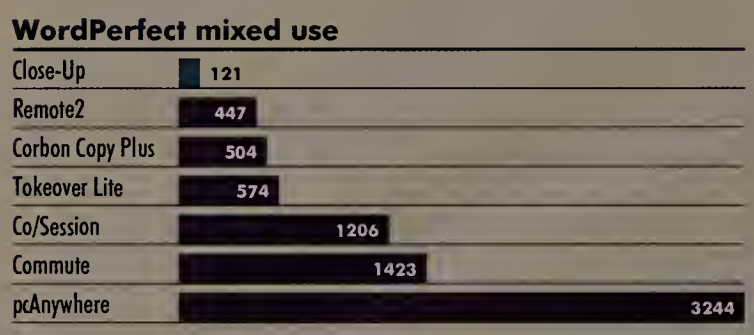
Circle 263 on reader service card

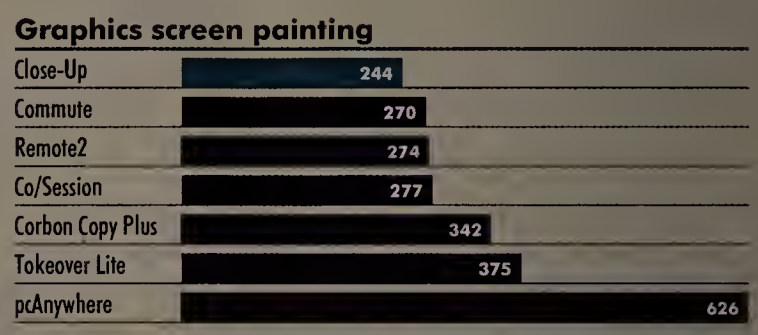
PC WORLD TEST REPORT

Nothing Comes Close to Close-Up

Some lag is inevitable when you run a PC remotely; the trick is to minimize delays with a fast modem and high-performance software. Best Buy Close-Up was the clear winner.

BEST BUY





Time in seconds.

Methodology
Tests used 20-MHz 386SXs, 2400-boud Hoyes-compotible modems, 800 by 600 VGA, ond DOS 5.0. We dioled in from guest to host. We initioted eoch test on the host ond timed the guest's screen redrow.

WordPerfect mixed use
We lood o *WordPerfect* document with o TIFF imoge. We move the TIFF imoge ond repoginote the document. We view the document in Print Preview mode.

Graphics screen painting
We use VGIF to view o scon of o color photogroph.

Text screen painting
We lood o text file into *WordPerfect*. We cut ond poste sections of text ond repoginote the document. We view the document in text mode only.

File transfer
A 134K file is sent from host to guest using eoch progrom's file tronsfer utility.

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805/683-5679 (fax)
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800/441-7234,
408/255-3344(fax)
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Remote2 2.1
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Alpharetta, GA 30202
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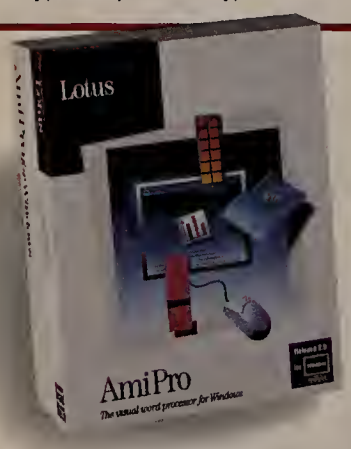

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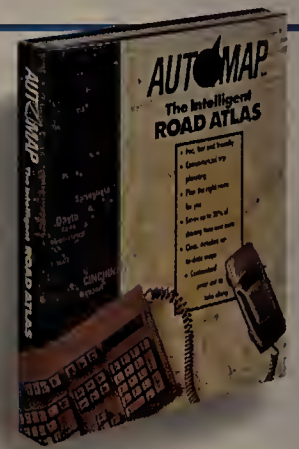

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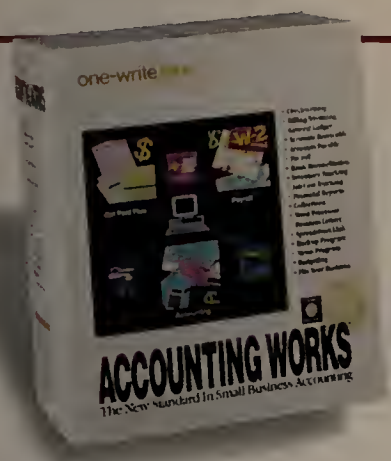

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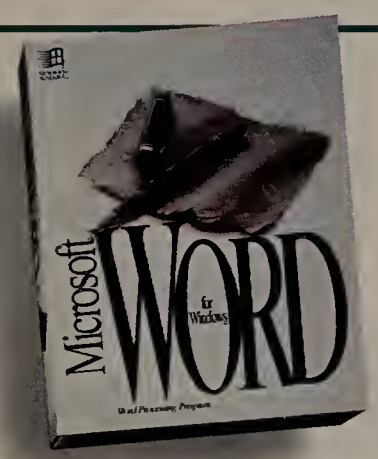

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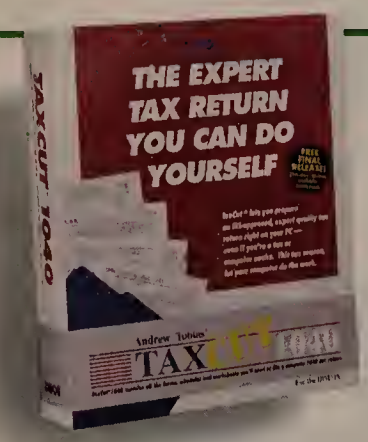

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XTREE ... NCP
6161 ▣XTree Gold 2.5 . . . . . $95.

Z-Soft ... NCP
1626 ▣Publisher's Paintbrush for Windows . . 299.

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3629 ▣Design Your Own Home-Architecture 3.0 63.
3631 ▣Design Your Own Home-Interiors 1.0 . . 63.

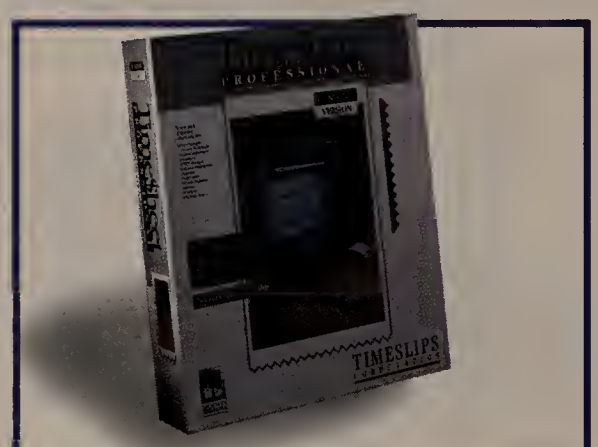
Broderbund ... CP
8068 ▣Where in World is Carmen Deluxe. . . . . 52.
1836 ▣Where in America's Past is Carmen . . . 39.
5851 ▣SimCity from Maxis. . . . . 33.
4388 ☐SimAnt from Maxis . . . . . 39.
4411 ▣SimEarth for Windows from Maxis . . . . 45.

Davidson & Assoc. ... NCP
3947 ▣Math Blaster Plus . . . . . 29.
4183 ▣KidWorks . . . . . 29.

EARTHQUEST ... NCP
3926 ▣EARTHQUEST . . . . . 35.

Electronic Arts ... NCP
4534 ▣Mavis Beacon Teaches Typing 2.0 *(CP)* 35.
3031 ▣Mavis Beacon for Windows. . . . . 45.
3023 ▣ChessMaster 3000 . . . . . 35.

Harvard Associates ... NCP
2324 ▣PC Logo 3.0 . . . . . 59.



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5037 ☐ *TimeSheet Professional for Windows*—Windows version now available! Track time & expenses for projects & clients. Unique electronic spreadsheet design provides a week-at-a-glance view of all your projects & tasks $135.

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2858 ☐Flight Simulator 4.0. . . . . 39.
8270 ▣Aircraft and Scenery Designer 1.0 . . . . 29.

Penton Overseas ... NCP
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3294 ▣Game Pak *(5 games in one)* . . . . . 32.

Spectrum Holobyte ... NCP
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Stone & Associates ... NCP
3439 ▣2nd Math 4.2 . . . . . 27.

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2704 ▣Nemesis Deluxe Toolkit 5.0 for Windows 75.

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4398 ▣The Animation Studio . . . . . 79.

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Warranties listed next to manufacturer.

American Power ... 2 years
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3858 Back-UPS 400 . . . . . 185.
3823 Back-UPS 600 . . . . . 299.

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9822 Graphics Ultra *(w/1 MB)* . . . . . 419.
2012 Graphics Ultra w/VGA *(w/1 MB)* . . . . . 479.
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9620 9600etc/e Modem . . . . . 379.
3902 Stereo•F/X . . . . . 149.
3900 VGA Stereo•F/X *(w/512K, upgrd. to 1 MB)* 329.

Boca Research ... 5 years
7150 BOCARAM/AT PLUS *(2 MB)*. . . . . 219.
7139 *(4 MB)* . . . . 329. 7138 *(8 MB)* . . . . 539.
6998 I/O Board for AT . . . . . 55.
6999 I/O Board for Microchannel *(S/S/P)*. . . . . 109.
8380 BasicVGA *(256K, 640 x 480)* . . . . . 63.
8381 SuperVGA *(1 MB, 1024 x 768)* . . . . . 145.
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Bravo Communications ... 2 years
7400 2 Position Laser Compatible Switch Box. 109.

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2336 Creative Labs Sound Blaster Pro . . . . . 189.

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8158 Typist Plus Graphics. . . . . 389.

Canon ... 1 year
We are an authorized Canon Service Center.
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7897 BubbleJet Ink Cartridge *(BJ-10ex)* . . . . . 23.
7896 BJ-10ex Sheet Feeder . . . . . 75.

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4124 VGA742 True Color Ultra VGA Card . . . . 199.

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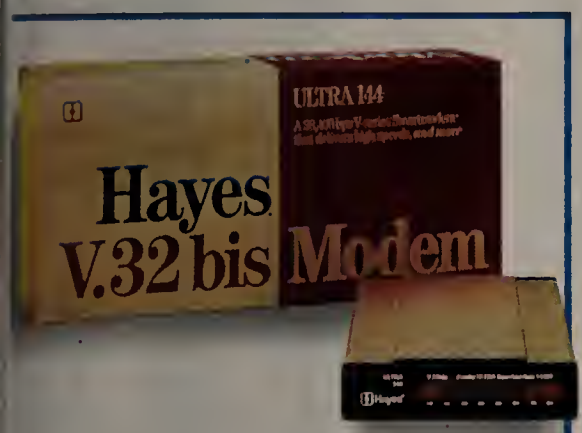
Colorado Memory Systems ... 1 year
4194 Jumbo 120 Tape Backup . . . . . 259.
4354 Jumbo 250 Tape Backup . . . . . 315.

software and widgets.



Hayes ... 2 years
5024 *ULTRA 144 Modem*–Supports CCITT V.32bis for 14,400 bps line speed and CCITT V.42bis for 38,400 bps throughput. Delivers unique SNA, X.25, and ISDN network connectivity . . . . . $799.

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MATH COPROCESSORS
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876 FasMath 83D87-33 . . . . . 195.
877 FasMath 83S87-16 *(SX compatible)* . . . . 115.
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2358 LQ-570 *(80 col., 252 cps)*. . . . . 289.
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2357 LQ-1170 *(136 col., 330 cps)* . . . . . 669.
5184 LX-810 *(80 col., 180 cps, 9 pin)*. . . . . 185.
Everex ... 1 year
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Hauppauge Computer ... 1 year
9870 25 MHz 386N Motherboard for AT . . . . . 899.
9034 33 MHz 386N Motherboard for AT . . . . . 979.
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3522 OPTIMA 96 Modem . . . . . 479.
9884 Pocket Edition 2400 . . . . . 125.
Hewlett-Packard ... 1 year
3957 LaserJet IIP Plus . . . . . 899.
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6754 LaserJet III *(with toner)* . . . . . 1679.
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3864 14.4EX Modem . . . . . 549.
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6420 2400EX MNP Modem . . . . . 225.
7880 9600EX Modem. . . . . 469.
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3311 MasterStand. . . . . 59.
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4518 101 Plus Keyboard . . . . . 99.
Kraft ... 5 years
5801 Game Card *(2 ports)* . . . . . 27.
5813 Game Card w/Thunderstick . . . . . 49.
5800 3 button Thunder Joystick . . . . . 29.
Logitech ... limited lifetime
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2343 Trackman Portable . . . . . 105.
7975 ScanMan 256 . . . . . 289.
3295 MouseMan *(combo)* 75. 9766 *(cordless)* 89.
Megahertz ... 5 years
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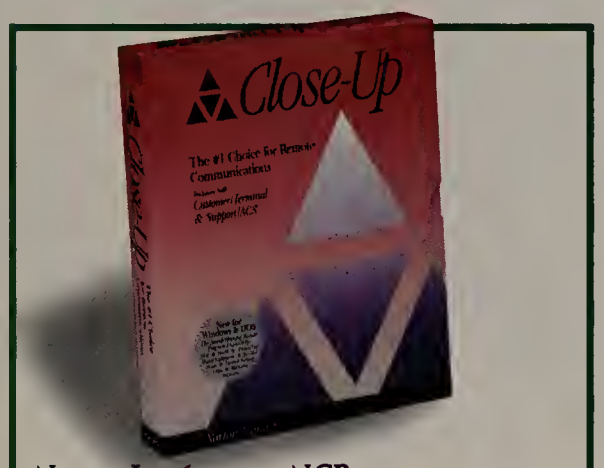
1187 T324FM 96/24 Fax Modem *(Toshiba Lptps.)* 299.
Micron Technology ... 2 years
7595 2 MB Expansion for HP LaserJet IIP or III 119.
7012 Memory Upgrade PS/2 70 - 2 MB . . . . . 139.



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2753 □ *Close-Up for Windows & DOS Dual Pack 4.0*–New! View and operate PCs miles away via modem. Give instant Windows and DOS support to customers at any location. VGA/EGA. **intro. price till March 31 $129.**

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MicroSpeed ... 1 year
2763 MicroTRAC *(serial & PS/2 interface)* . . . . . 59.
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4252 Multisync 3FGX Monitor *(14")* . . . . . 679.
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Okidata ... 1 year
5093 OL400 Page Printer *(4 ppm)* . . . . . 649.
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3025 Toner Cartridge . . . . . 25.
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7863 ProDesigner VGA IIS *(with 1 MB, includes RAMDAC chip)*. . . . . 249.
4071 1280i with 1 MB . . . . . 365.
Pacific Data Products ... lifetime
6779 25 Cartridges in One! *(LJ II, IID, IIP, III, IIID)* 269.
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8975 Complete Font Library *(LJ III, IIID, IIIP)* . . 275.
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8090 Pacific Connect with 1.25 MB. . . . . 349.
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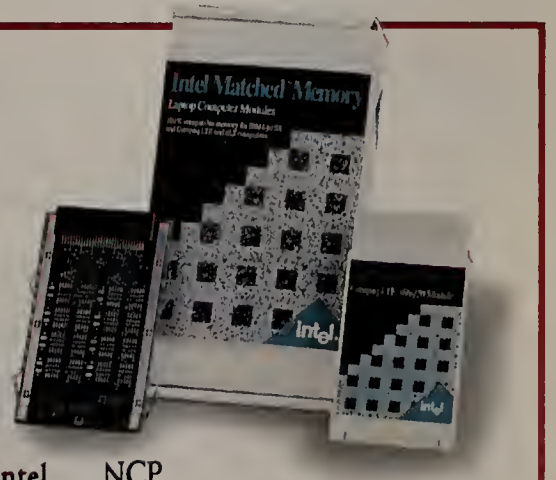
6834 Pacific Page *(for LJ II)* w/2 MB Mem. Brd. 379.
9833 Pacific Page XL *(w/accelerator board)* . . 799.



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8993	2400 Baud Internal Modem *(V.42 bis)*	169.
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8132	PM2400 Pocket Modem	109.
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2264	PM2400FX96 *(modem/fax board)*	145.

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4137	T2200SX Notebook *(60 MB)*	3349.
1773	T3200SX Laptop *(120 MB)*	3249.

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6200	Isobar 6-6 *(6 outlets, Gold Seal Warranty)*	59.
6201	Isobar 8-12 *(8 outlets, Gold Seal Warranty)*	69.

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9768	VRAM II VGA 1 MB	329.

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1181	2400 Baud V.42bis Modem *(2 year)*	129.
1167	2400 Baud Internal Modem	65.
1166	2400 Baud External Modem	75.
3075	9600 V.32 Turbo Internal Modem *(2 yr.)*	399.
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2500	PC2B Controller	199.
2530	90 MB Cartridge	149.
2467	90 MB Cartridge Tripak	439.

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5190	DC2000 Pre-formatted Cartridges ... ea.	35.
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8304	Plus Hardcard II XL 50 MB *(9 ms)*	$299.
8287	Plus Hardcard II XL 105 MB *(9 ms)*	449.
4060	105 MB Drive Kit for MC PS/2's *(13 ms)*	789.
4009	105 MB IDE Drive Kit *(13 ms)*	399.
4061	210 MB IDE Drive Kit *(13 ms)*	749.
4059	80 MB Drive Kit for MC PS/2's *(13 ms)*	629.

TEAC ... 1 year

4670	1.44 MB Drive for PC/XT *(3½")*	69.
4326	1.44 MB Drive for AT *(3½", w/Basetech)*	89.
4951	720k Drive for PC/XT *(3½")*	69.
6951	1.2 MB Drive for AT *(5¼")*	75.

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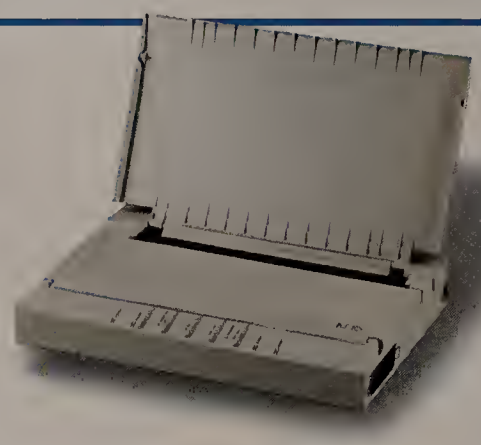
6556	256k DRAM *(100 ns, set of 9)*	call
5510	1 MB x 9 SIMMs *(80 nanosecond)*	call
2497	4 MB x 9 SIMMs *(80 nanosecond)*	call
5746	1 MB Chips *(80 ns, set of 9)*	call
7813	256K x 4 Chips	call



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2243	3½" DS Disks Color *(Qty. 10)*	10.

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3291	5¼" DS/DD 360k Disks *(Qty. 10)*	7.
3292	5¼" HD Disks *(Qty. 10)*	12.
3297	3½" DS Disks *(10)* ... 9. 6148 *(30)*	25.
3298	3½" HD Disks *(10)* .. $15. 6375 *(30)*	$42.
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2520	DG90M 4mm Data Cartridge *(2 GB)*	27.
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1895	QD2120 Tape Cartridge	21.
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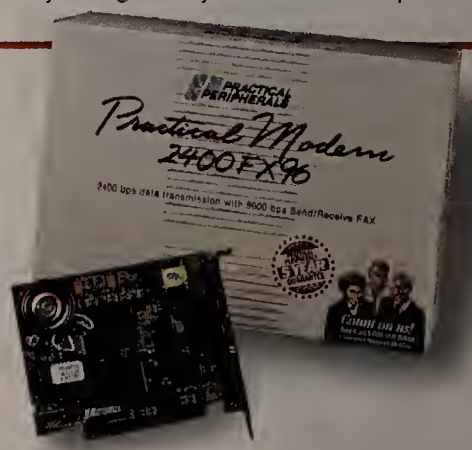

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2264 *PM2400FX96 Fax Modem*–2400 bps internal modem with true 9600 bps send/receive capabilities. A Hayes compatible 1/2 card, it also allows you to receive faxes in the background, & includes QuickLink II.. $145.

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Don't know which way to turn?
(Or, the node not taken.)

We tend to take the road less travelled up here in the lovely, dark, and deep woods of Marlow, NH (pop. 568). We've introduced services like toll-free technical support, recycled packing materials, and One Minute Mail Order™ long before anyone else in PC mail order. And to our customers, that has made all the difference. Because they know we have many promises to keep and will, in fact, go miles before we sleep to clear up any confusion about any program or peripheral you buy from us.

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COVER STORY

A sneak peek at the latest, greatest Windows upgrade

DOWS 3.1

PHILIP ANDERSON

Diehard DOS users are finding it tougher and tougher to thumb their noses at *Windows*. Although for years Microsoft promised a lot and delivered little, when *Windows 3.0* finally shipped in mid-1990, the face of PC computing changed forever. Seven million copies later, *Windows 3.0* is an established fact; *not* using it is nearly impossible, because it means living without such exceptional applications as *Excel 3.0*, *Ami Pro*, *PageMaker*, and a host of others. With the release of *Windows 3.1*—rumored to become available in two months—Microsoft is making a pitch to win over the holdouts.

Whether it will succeed is a matter of debate. Converts have praised *Windows*' consistent graphical interface, easy mixing of text and graphics, and powerhouse programs that you just can't find in the DOS world. But critics have justly panned the environment for being slow, idiosyncratic, hard to fine-tune, and crash-happy when running DOS applications or connecting to networks. Another stumbling block: *Windows* applications from major data base and communications vendors are still unavailable.

Windows 3.1 addresses some of these gripes and certainly tips the scales further in its favor. It's faster and friendlier, should crash fewer DOS programs, and is smarter about managing memory. Three killer additions make upgrading to *3.1*

ROBERT LUHN

irresistible: the ability to close a crashed application window by typing <Ctrl>-<Alt>-<Delete>; TrueType, a built-in font-scaling system that rivals PostScript; and support for OLE (Object Linking and Embedding), which lets you paste data or graphics into a document and maintain "hot links" with the source application for easy updating.

Cutting-edge goodies are nice, but the interface is what you have to live with every day, and in this area, *Windows 3.1* falls a little flat. According to Microsoft, *3.1* is a "fit-and-finish" upgrade that irons out the wrinkles in *Windows'* interface. For example, dialog boxes have been reworked and standardized and now feature separate scrollable file, directory, and drive lists. Many of the dialog boxes include *tunnels*—buttons that can tap related functions, such as printer setup controls from within Print Manager. Some windows include status lines, and the help system now sports a button bar that makes navigation a one-click affair.

> Windows 3.1 is faster and friendlier, should crash fewer DOS programs, and is smarter about managing memory.

But those expecting a full-blown revamp of the interface will be sorely disappointed. Instead of borrowing the best features from *Norton Desktop for Windows*—a smaller, more nimble File Manager; drag-and-drop file printing and deletion from the desktop that doesn't require you to open and navigate multiple windows; and customizable buttons and menus—*Windows 3.1* mostly maintains the status quo. When asked why, one Microsoft executive joked, "Well, it gives the Nortons of the world something to do."

The new Program Manager and File Manager illustrate Microsoft's failure to follow through on good ideas. Although the Program Manager desktop is largely unchanged, a handy new StartUp group will run programs or load files automatically whenever *Windows 3.1* is loaded. Just open the StartUp window, drag the desired program icons or data icons into the window, and close it; *3.1* will execute the programs or load the files the next time around. But *3.1* can't automatically position and size application windows, something that third-party utilities have been doing for years. And unlike with *Norton Desktop*, you can't nest groups within groups—a handy organizational tool.

However, you do get better control over *Windows* programs via an expanded Properties dialog box. You can assign hot keys that quickly load *Windows* or DOS applications. And at last you can specify a different working directory for a *Windows* program, so that *PageMaker* on drive D: could automatically look for PM4 files in C:\REPORTS.

DRAG AND DROP—AND LITTLE ELSE

Although users have given *Windows 3.0*'s File Manager consistently low marks, Microsoft has done little to improve this warmed-over *XTree*. The directory tree and file windows have been melded into a single split-screen window, but this only reduces the number of windows you have to fuss with from three to two. Resize the surrounding File Manager window, and you'll probably be forced to drag and scroll the split-screen window back into view. *Windows'* File Manager now combines the directory and file windows. You can also pick file associations from a convenient menu.

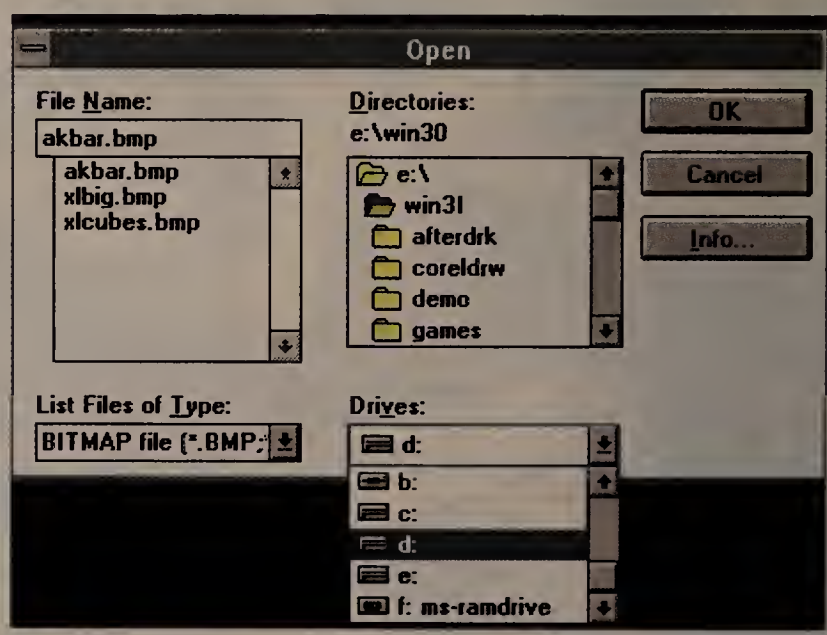
In *3.1*, the enhanced "drag-and-drop" feature is File Manager's biggest change. In *Windows 3.0*'s File Manager, you can copy or move files by dragging them from one place to another. In *3.1*, drag a data icon out of File Manager and drop it into an application window or onto its minimized icon, and the file opens. Drag it into the Print Manager window, and the file is printed.

In theory, drag-and-drop sounds great. But because File Manager isn't integrated with the Program Manager desktop, printing or running a file means opening, sizing, and scrolling a fistful of windows. Nor does drag-and-drop printing work for data files associated with DOS applications. To see a significantly better File Manager, check out *Norton Desktop*.

OF MEMORY AND MULTITASKING

Like the Volkswagen of yore, *Windows 3.1* may not be any prettier, but a lot of changes have taken place under the hood. Microsoft has focused on trimming the fat from its memory management modules, and that translates into better performance all around and specifically, faster multitasking.

For starters, you won't get 'out of memory' messages nearly as often because Microsoft has doubled the capacity of "System Resources"—*Windows'* bookkeeping function that tracks how many applications, windows, dialog boxes, and so on are open. If you could run only four *Windows* applications



Windows dialog boxes have a new standardized look, with file access broken down by file, extension, directory, and drive.

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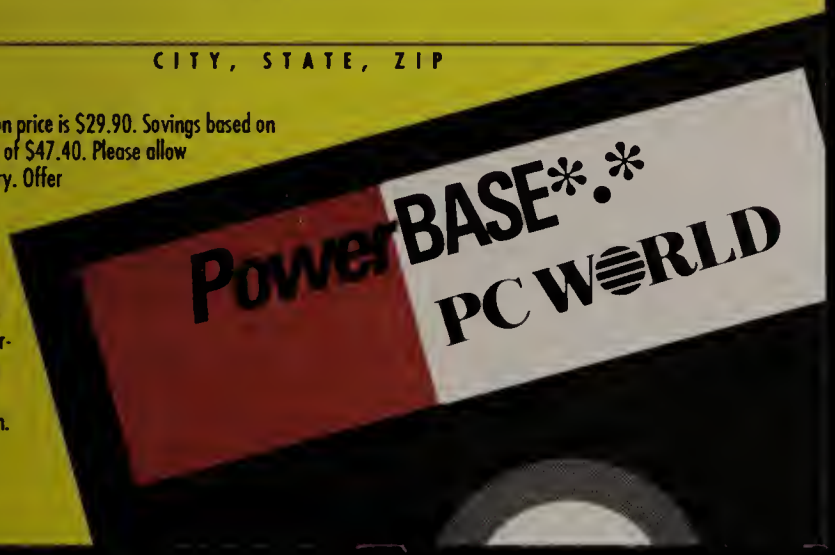

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before, now you can run eight or ten.

The renovated virtual memory system, which uses disk space like RAM when memory is low, is not only faster but can finally be used by DOS applications. Creating a virtual memory swap file is no longer a labyrinthine process; select the 386 Enhanced icon in the Control Panel, click a button or two, and *Windows* suggests how much disk space to set aside and creates the swap file.

Windows communications drivers, long a performance bottleneck, have also been optimized and scan the keyboard far more diligently. So if *Procomm Plus* is downloading a massive file and you really need to return to your spreadsheet, you won't have to wait 5 minutes before *Windows* switches you back.

Multitasking, in short, finally seems workable. Even with the prerelease version of *Windows 3.1* examined here, downloading a 20K file in the background with *Procomm Plus* while globally formatting a 180K *Ami Pro* document is surprisingly fast.

DOS AND DON'TS

Nearly half of all *Windows 3.0* users run DOS programs in the environment—and many have regretted it. The problem is that DOS applications, and even some *Windows* applications, don't always play by the rules when using memory or the screen. The result is frozen keyboards, crashed applications, or even a bum's rush to the DOS prompt.

Windows 3.1 certainly won't be crashproof, but it should be more stable than *3.0*. Thanks to more stringent internal monitoring and recovery routines, *3.1* will keep running if a minor fault occurs and will even identify the culprit. And if a dreaded Unrecoverable Application Error (UAE) pops up, you can now press <Ctrl>-<Alt>-<Delete> to shut down the window and continue with your work. Another nicety: You can finally run DOS graphics programs in a window.

When it comes to configuring DOS programs for *Windows*, however, the news is mixed. *Windows 3.1* will include more prefab PIF files, and some will be a bit smarter. For example, when you add *1-2-3* to the desktop, *3.1* will ask how you want to configure extended memory, and it will then automatically install the PIF. The bad news: The basic and advanced PIF screens are just as arcane as before, so fine-tuning your DOS program will still be a trial-and-error process. As minor compensation, *3.1* does provide a dozen or so generic icons for DOS applications—a Swiss Army knife, a telephone, and so on.

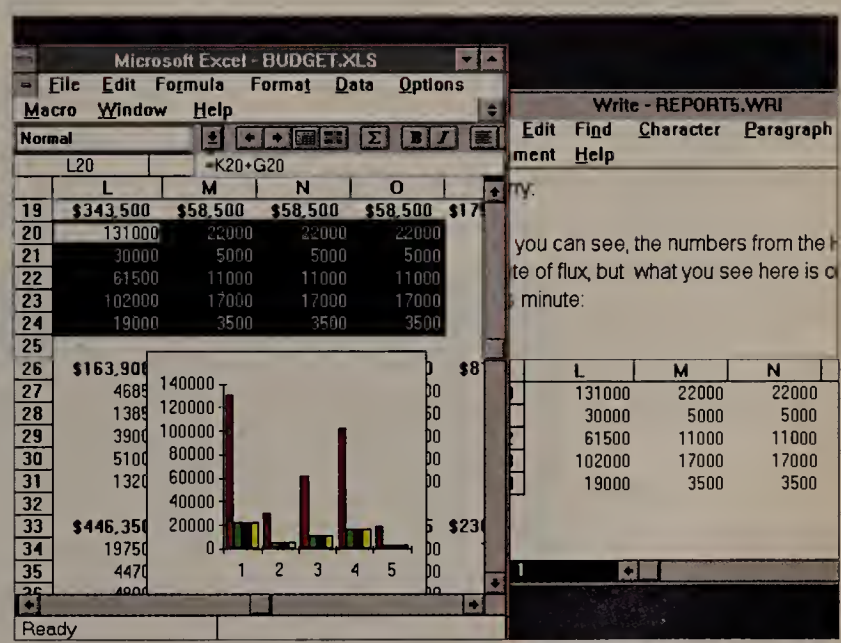
CUT, PASTE, OLE!

One of the reasons people turn to *Windows 3.0* is so they can cut and paste data easily between applications. Unfortunately, what you can cut and paste depends on the applications—a limit that still applies to *Windows 3.1*.

As in *3.0*, you can move only text between DOS applications. And you can't copy more than a screen's worth of data from a DOS window (a hurdle *Desqview* leaped years ago), and *3.1* still doesn't provide any handy keyboard shortcuts. The story for *Windows* applications isn't much different. Sometimes you can move graphics or formatted text between programs, sometimes you can't. Microsoft blames developers for not supporting the Clipboard, while developers point out that the Clipboard should incorporate a standardized list of formats, such as PCX and TIF, that everyone can agree on. Until that happens, cut-and-paste will remain a quirky affair.

Less quirky is *Windows 3.1*'s use of Object Linking and Embedding. Essentially a very smart cut-and-paste function, and surprisingly easy to use, OLE is finding its way into scores of new *Windows* applications. Instead of just copying static data from one program to another, you now create live, dynamic links between any two applications that support OLE. For example, highlight numbers in an *Excel 3.0* worksheet, select Copy, switch to an *Ami Pro 2.0* document, and use the Paste Link command. The worksheet numbers appear in *Ami*, but are actually stored in *Excel*. Change the numbers in *Excel*, and they're instantly updated in the *Ami* document. If *Excel* is closed and you need to change the embedded numbers in *Ami*, double-click the numbers, and *Excel* is loaded with the appropriate worksheet, ready for editing.

In keeping with *Windows* tradition, you can establish OLE links in several ways. While in *Ami*, select the Insert Object command, pick an OLE object type from a list (such as an *Excel 3.0* chart), and *Excel* is loaded. Create the chart, and voilà!—it is automatically pasted and linked into *Ami*. You can even create a link after the fact. Double-click a static Paintbrush graphic pasted into a *Winword* document, and *Windows 3.1* will load Paintbrush, let you make edits, establish a hot link, and then pass the changes along. Since linked data is a true object, you can copy it ad nauseam to any OLE-aware appli-



Hot-linking two applications takes little more than a cut and paste. In this shot, changing numbers in Excel instantly updates linked numbers in a Write document and redraws an Excel chart.

cation and maintain the hot links. This capability is perfect if you need to share frequently updated information, such as a financial worksheet stored on a network server, with many users.

If you believe in the paperless office, you can even embed notes or graphics in a document. For example, run File Manager, drag a Write document icon into an open *Excel* worksheet, and save the worksheet. To read the memo, double-click the embedded Write icon, and the file opens. *Windows 3.1* also supports audio objects—sounds or recorded messages that play back when you click a tiny microphone icon. Just keep in mind that object linking works only with products that support OLE and that your ability to move or size an embedded object may be severely limited. Want to embed a file within a file? To place a memo inside *Excel 3.0*, drag the document icon from File Manager and drop it into the worksheet. To read the memo, double-click the object.

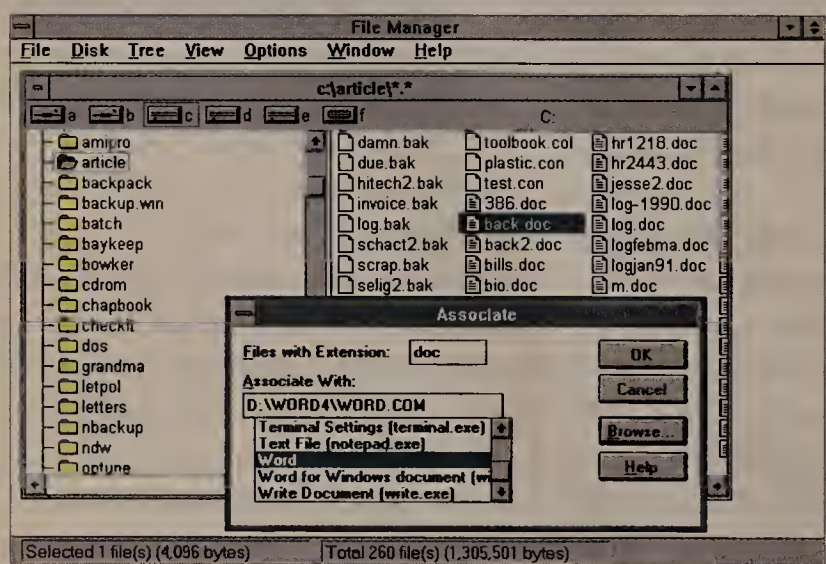
> Believers in the paperless office will appreciate the ability to embed notes or graphics in a document for on-screen viewing.

A TRUER TYPE?

Another innovation is TrueType, a built-in font-scaling technology that's Microsoft's answer to PostScript and *Adobe Type Manager*. Thanks to TrueType, *Windows* applications are no longer limited to rigid bit-map fonts in fixed point sizes. As with PostScript, you can dynamically scale TrueType fonts to any size and view the result on screen. But you don't need a TrueType printer—you can print TrueType fonts on LaserJet, PostScript, and even some dot matrix printers. It's like having *ATM* built in, without paying $99 to Adobe. Obviously, if your printer supports TrueType, you can rotate text, create gradients, and tap other special effects. But if you just want snazzy-looking type, TrueType is all you need.

Microsoft naturally claims that TrueType is faster than PostScript and produces sharper output. The jury is still out, but informal tests show that TrueType looks better at small point sizes and is pretty darn fast. TrueType is also smart enough to download only the fonts you need—and to substitute your printer's fonts if you like. The downside: *Windows 3.1* comes with only four TrueType families (Times, Courier, Helvetica, and Symbol), and the number of TrueType printers on the market can be counted on the fingers of one hand.

A bigger problem is, like it or not, PostScript is still *the* PC type standard. Unless you have *ATM*, *Windows 3.1* will not display Adobe Type 1 fonts, and at press time, support for PostScript Level 2 was still doubtful. Desktop publishers should take note.



Windows' File Manager now combines the directory and file windows. You can also pick file associations from a handy menu.

Excel pioneered the one-click button bar, but in Windows 3.1, this feature appears only in the help system.

WINDOWS MEETS NETWARE

Talk to network managers, and you will find that they hate two things about *Windows:* Tweaking it for a LAN can take months, and there's almost no documentation to help. Version 3.1 should relieve some of these woes, but at this point, Microsoft is a little fuzzy about the details. Microsoft pledges that *3.1* will recognize popular networks at installation time and automatically modify INI settings. *3.1* will also remember what network drives and printers a user is connected to. Microsoft plans to offer a separate Winlogin utility that will allow roving users to tap their setup information from another workstation. But beyond that, Microsoft is mum, so network types should scrutinize the final package carefully before they make their final purchase.

A WINDOWS FOR THE REST OF US?

Windows 3.1 may not win any awards for best upgrade of the year, but it's still a solid piece of work. It's faster, more usable, and more stable than *3.0*. And a squadron of enhancements gild the lily—selective install/uninstall of *Windows* files, a faster Print Manager, another 40-plus printers supported, video drivers for super-VGA setups and laptops, and more. Anyone who uses *Windows* should make the jump, if only for the performance boost. *Windows* skeptics should hold their noses, buy a copy of *Norton Desktop*, and join the rest of the PC world.

Granted, Microsoft's failure to address basic user interface problems—especially with File Manager—leaves *Windows 3.1* a little like a race car with one flat tire. If you yearn for airtight DOS handling, true preemptive multitasking, and security features, you'll have to wait for *Windows NT*, the full 32-bit version scheduled to ship at the end of 1992. In the meantime, *Windows 3.1* is still the best way to banish the DOS prompt—and Mac envy.

Robert Luhn is a contributing editor for PC World.

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1. # SIMM sockets standard	16	4	4	NEC
	16	4	4	NEC
2. Maximum RAM capacity	64	64	80	AST
	112	64	80	NEC
3. Internal hard-drive storage capacity	2.7GB	1GB	420MB	NEC
	4GB	4GB	2.4GB	Tie
4. Power supply	285W	240W	167W	NEC
	388W	355W	300W	NEC
5. Internal fans	3	1	1	NEC
	4	2	2	NEC
6. Snap-in device rails	Yes	No	No	NEC
	Yes	No	No	NEC

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Susan Lusty, Eric Brown, Dan Tynan, and Brett Glass

Traveling Companions

Portable printers, fax-modems, and LAN adapters can turn your notebook road warrior into a complete portable office.

You may be on the road, but you still have deadlines to meet. Luckily, today's notebooks can keep up with the busiest mobile executive, and their accessories aren't far behind. With a portable printer, you can proof documents right in your hotel room. And with a portable fax-modem and a pocket LAN adapter, you can stay in touch with the office and even hook into a network.

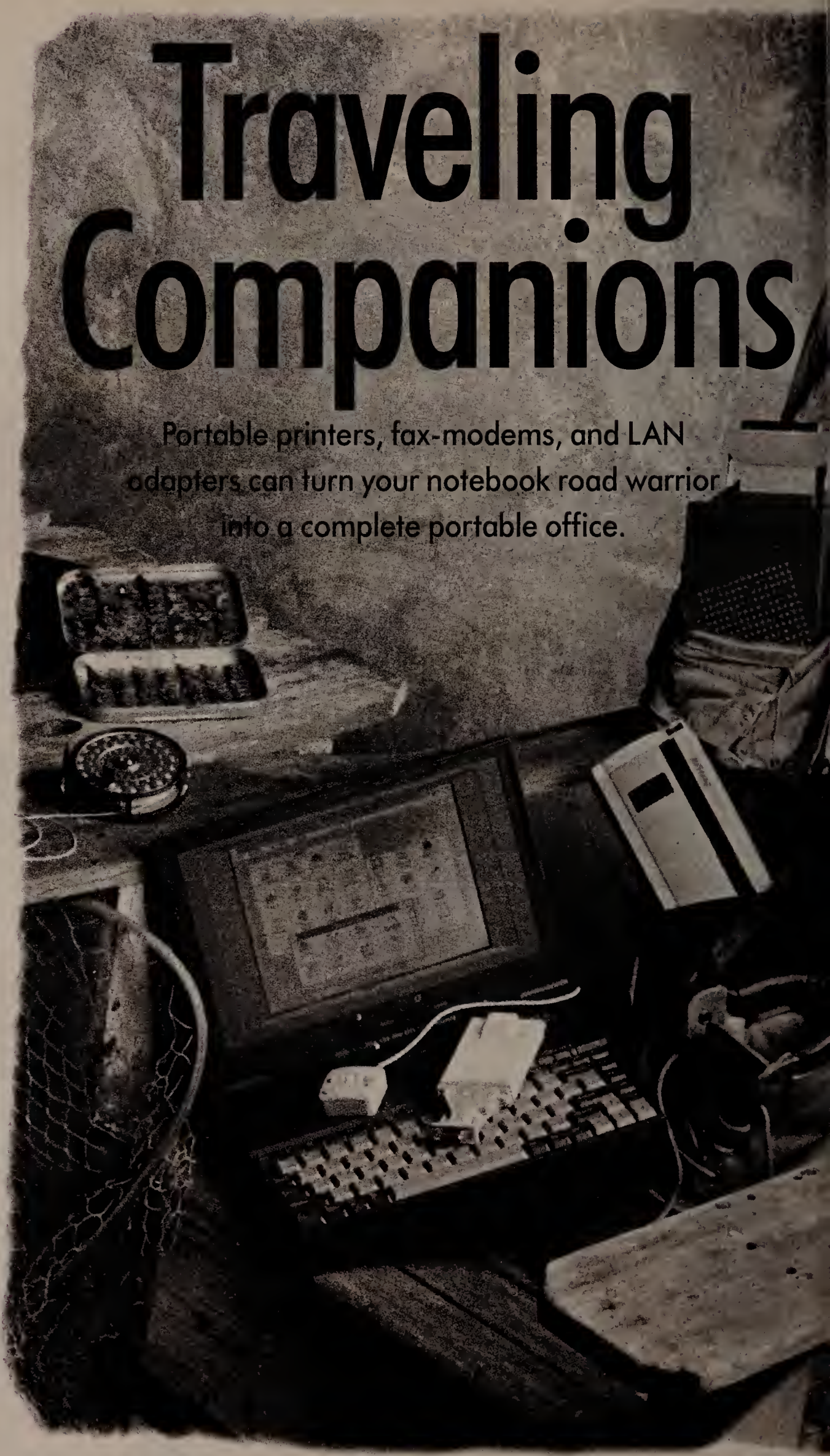
Accessories like these are helping to turn the idea of the portable office into reality. Perhaps the most useful attachment of all—especially for *Windows* addicts—is the portable pointing device. In the cramped quarters where most of us do our transit computing, clip-on trackballs and other innovations can make today's hottest software usable, even at 30,000 feet.

This guide provides a comprehensive directory of portable PC accessories, plus tips on how to select the right products for your applications. And with the right mix of gadgets, you could have less to catch up on the next time you return home to the office.

Ready to Print

Portable printers let you churn out on-the-spot invoices, contracts, presentation materials—anything that can't wait till you get back to the office. Today you can find a pack of mobile printing devices that weigh less than 10 pounds and run on battery or AC power.

Which type of printer is right for you? An impact printer is the only type that can handle multipart forms, so if you often print documents such as invoices, a dot matrix portable is your best choice. To update presentation overheads, you'll need a high-reso-



JOHN CLAYTON

lution ink jet or thermal that can handle transparencies.

When you're printing on the go, output quality takes a backseat to portability. The printer should slip easily into your briefcase alongside your notebook PC. Odds are you'll be doing your printing within reach of an electrical outlet, but if you *do* need to print on the fly, look for a rechargeable battery that'll produce at least 30 pages before it runs down.

When it comes to fonts, most portable printers travel light. At minimum, you should demand two typefaces in three sizes, plus at least 150K of RAM to download two or three typefaces. A printer's capability to add font cartridges is a welcome extra. Look for common typefaces such as Helvetica and Times Roman, and always examine print samples before you buy.

Speedy printout is something you'll have to do without. The fastest unit listed, the Mannesmann Tally MT 735, will spit out a page of text in about 20 seconds; the other printers can take 3 minutes or longer. All except the Itron handle letter- and legal-sized paper; the top ones also print labels, envelopes, and transparencies. And unless you enjoy feeding your printer one page at a time, look for a model with a paper feeder that holds at least 30 sheets.

To guarantee that your software will run with these printers, all of them except the Itron emulate the popular IBM Proprinter; most also offer Epson emulations. Look for one that lets you choose emulations via software or front-panel controls instead of DIP switches. The Mannesmann Tally MT 735 is the only printer here that offers HP DeskJet and HP LaserJet II emulations.

Travel can do bad things to good printers. To avoid disasters, choose one with a high durability rating (measured as mean time between failures, or *MTBF*) and demand at least a one-year warranty. Many companies offer 24-hour turnaround on repairs.

Communication A-Go-Go

Though getting away from the office may seem like a relief sometimes, no one on the road profits from being cut off from it. A portable modem or fax-modem is one of the best ways to ensure you'll stay in touch.

Almost every laptop comes with a slot for an internal modem, but because each laptop has a different expansion bus, you're usually limited to a proprietary product sold by the laptop vendor. If you own a popular laptop model like a Compaq or a Toshiba, you may find some less expensive, more feature-rich options from third-party vendors.

> No one profits from being cut off from the office. A portable modem ensures that you'll stay in touch.

The greatest selection, hottest features, and best bargains are found among external portable modems. These lightweight pocket modems usually fit easily into your laptop carrying case, and because they plug into any serial port, you can easily use them with a desktop PC. Most external modems also provide helpful status lights and speakers.

In this buyers' guide we've listed only external pocket units that weigh 10 ounces or less (without batteries), operate at 2400 baud or faster, and are Hayes compatible.

Fax support is optional. If you need it, a send/receive fax is your best choice, but send-only is usually cheaper. All the fax-modems listed are Group III compatible, so they can exchange faxes with any fax board and fax machine. Some also support the new Class II standard. If your fax-modem is Class II compatible, by mid-1992 you won't be limited to only the fax software bundled with your modem; you'll be able to use a variety of packages. Also look for a fax redirection feature that can let you hijack print jobs and convert them to fax on the spot.

Most portable modems are powered by batteries (or an AC adapter), or else they draw power from the phone line and the attached PC. The line- and serial-powered systems are considerably lighter, smaller, and less expensive, and you don't have to replace spent batteries. However, these little modems do suck the life out of your laptop's battery.

If the modem has built-in error correction and data compression based on MNP-5 or the faster V.42bis standard, you should be able to double or triple your effective data throughput respectively when communicating with modems that support the same standards. Modems that implement data compression via software, however, are substantially slower than those that implement it in hardware.

A few vendors have even been able to squeeze V.32 circuitry into a 10-ounce box, letting you swap data at 9600 baud or faster. If you don't have

MODEMS

Manufacturer	Product	Price	STANDARD FEATURES: Weight without battery (oz.)	Dimensions (inches)	Baud rate	AC/battery powered
ARCHTEK AMERICA	2400P	$99	7.2	4.8x1.3x1.3	2400	Y[2]
	9624PXB	$299	7	4.8x2.8x1	2400	Y[2]
	9624PXB-S	$359	7	4.8x2.8x1	2400	Y[2]
BEST DATA PRODUCTS	Smart One Traveler 9624PF	$249	7	5x2.8x1.2	2400[3]	Y
COMPUTER PERIPHERALS	Viva 2400 pocket	$139	6.5	4.7x2.7x1	2400	Y
	Viva 2496 pocket	$249	6	4.7x2.7x1	2400[3]	Y
	Viva 2496 V.42bis pocket fax	$299	6	4.7x2.7x1	2400[3]	Y
E-TECH RESEARCH	P9696MX	$745	6.5	4.7x2.5x1.2	9600	Y
	P2400MX	$345	6.5	4.7x2.5x1.2	2400	Y
EVEREX SYSTEMS	Carrier 24/96	$399	6.8	6.3x3.5x0.5	2400[3]	Y
GALAXY NETWORKS	Pocket Fax/Modem	$199	8.6	4x2.5x1	2400	Y
GVC TECHNOLOGIES	FMM-9624V Pocket Fax Modem	$299	6.5	4.8x2.4x1	2400[3]	Y
HAYES MICROCOMPUTER PRODUCTS	Pocket Edition 2400	$179	3	3x2x1	2400	[2]
IMAGE COMMUNICATIONS	Twincom Commuter	$189	10	4x2x1	2400[3]	[4]
LOGICODE TECHNOLOGY	Quicktel Pocket Modem	$299	5	4.5x2.3x1.1	2400[3]	[2]
MACRONIX	Maxlite/PC	$499	5	4.8x3x1	2400[3]	Y
	Maxlite 96/PC	$649	5	4.8x3x1	9600	Y
	Maxlite 144/PC	$699	5	4.8x3x1	14,400[3]	Y
MEGAHERTZ	P224SFM	$309	6	3.3x2.3x1	2400	Y
	P224FMV	$399	5	3.3x2.3x1	2400	Y
	P224SF	$199	5	3.3x2.3x1	2400	[2]
MICROCOM	MicroPorte 1042	$649	10	4.6x2.8x1.4	9600	Y
	MicroPorte 542	$449	10	4.6x2.8x1.4	9600	Y
	MicroPorte 1032	$849	10	4.6x2.8x1.4	14,400	Y
MICRO ELECTRONIC TECHNOLOGIES	9624 PF	$399	6	4.8x2.8x1	2400[3]	Y
OMNITEL	2496p+	$315	4.8	5x2.5x1	2400	Y
PRACTICAL PERIPHERALS	PPM 2400 V.42bis SendFax	$299	4	3x2.3x1	2400	Y
	Practical Pocket Modem	$159	4	3x2.3x0.8	2400	[2]
SOLECTEK	Pocket Fax Modem FM-D	$299	3.5	4.5x2.8x1.3	2400[3]	Y
	Pocket Fax Modem FM-W	$349	3.5	4.5x2.8x1.3	2400[3]	Y
STAR LOGIC	Pocket Fax/Modem	$199	7	5x2.5x1	2400[3]	Y
	Pocket Modem	$99	4.5	5x2.5x0.8	2400	Y
SUNHILL NIC	Datatronics Discovery 2496PF	$256	4	4.6x2.5x1.1	2400[3]	Y
	Datatronics Discovery 2496PX	$296	4	4.6x2.5x1.1	2400[3]	Y
TELEBIT	QBlazer	$745	8	2.4x2.4x2.3	9600	Y[2]
U.S. ROBOTICS	Worldport 9600	$699	5.4	4.8x2.8x1	9600	Y
	Worldport 2400 v.42bis	$349	5.4	4.8x2.8x1	2400	Y
	Worldport 2400	$229	5.4	4x2.4x1	2400	Y
	Worldport 2496 Fax/Data	$499	5.4	4.8x2.8x1	2400[3]	Y
VOCAL TECHNOLOGIES	Stowaway 2400	$150	6	2x2x0.7	2400	[2]
ZOLTRIX	Pocket 2400p	$99	4.5	5.5x2.5x1	2400	Y
	ZoCom pocket 96/24	$259	4.1	5.5x2.5x1	2400	Y
ZOOM TELEPHONICS	FaxModem PKT	$169	5.3	4.7x2.5x1	2400[3]	[5]

[1] S = software, H = hardware, N = none.
[2] Serial and line powered.
[3] 9600-baud fax.
[4] AC adapter powered only.
[5] Battery powered only.

a communications package, you might look for a modem that comes with bundled software, although third-party packages usually offer more features.

Have Mouse Will Travel

Many of us are addicted to mice. But if you're in a tight space, where can you find the room? Most portable pointing devices solve this problem by using a trackball ranging from 0.3 to 1.5 inches in diameter. However, there are more creative solutions, such as the Suncom IController, which is a minijoystick, and the Appoint Mouse-Pen Professional, a penlike device with a kind of trackball in its point.

Choose an input device that feels comfortable and gives you the most control.

ERROR CORRECTION/DATA COMPRESSION PROTOCOLS				FAX FEATURES								
MNP-5[1]	V.42[1]	V.42bis[1]	V.32[1]	Class II	Fax receive	LaserJet redirection	Epson FX redirection	Bundled software	Speaker	Dual phone plugs	Warranty	Reader service number
S	N	N	N	N	N	N	N	Comit	Y	Y	2 years	766
S	N	N	N	Y	Y	Y	Y	BitFax, Comit	Y	Y	2 years	767
H.	H	H	H	Y	Y	Y	Y	BitFax, Comit	Y	Y	2 years	768
H	S	S	N	N	Y	Y	Y	Mirror Fax or QuickLink II	Y	Y	2 years	769
N	N	N	N	n/a	n/a	n/a	n/a	Procomm	Y	Y	5 years	770
N	N	N	N	Y	Y	Y	Y	Quick Link	Y	Y	5 years	771
H	H	H	H	Y	Y	Y	Y	Quick Link	Y	Y	5 years	772
H	H	H	H	Y	Y	Y	Y	BitFax	Y	Y	2 years	773
H	H	H	N	Y	Y	Y	Y	BitFax	Y	Y	2 years	774
H	N	N	N	Y	Y	N	Y	EFax, Procomm	Y	Y	2 years	775
N	N	N	N	N	Y	Y	Y	QuickLink	Y	Y	2 years	776
H	H	H	N	Y	Y	Y	Y	QuickLink II	Y	Y	5 years	777
N	N	N	N	n/a	n/a	n/a	n/a	Smartcom EZ	N	Y	2 years	77B
H	H	H	N	N	Y	Y	Y	QuickLink II	Y	Y	1 year	779
S	S	S	N	N	Y	Y	Y	QuickLink II	N	Y	lifetime	7B0
H	N	N	N	Y	Y	Y	N	FaxTalk, WinFax, Comit	Y	N	5 years	781
H	H	H	H	Y	Y	Y	N	FaxTalk, WinFax, Comit	Y	N	5 years	782
H	H	H	H	Y	Y	Y	N	FaxTalk, WinFax, Comit	Y	N	5 years	783
H	H	H	N	Y	N	N	Y	MTEZ	Y	N	5 years	784
H	H	H	N	Y	Y	N	Y	MTEZ	Y	N	5 years	785
N	H	H	N	Y	N	N	Y	MTEZ	Y	N	5 years	786
H	H	H	N	n/a	n/a	n/a	n/a	Carbon Copy Plus	Y	N	1 year	787
H	H	H	N	n/a	n/a	n/a	n/a	Carbon Copy Plus	Y	N	1 year	788
H	H	H	H	n/a	n/a	n/a	n/a	Carbon Copy Plus	Y	N	1 year	789
H	H	H	N	Y	Y	Y	Y	QuickLink II	Y	Y	5 years	790
S	N	N	N	Y	Y	Y	Y	BitFax, Procomm	Y	Y	2 years	791
H	H	H	N	Y	N	Y	Y	QuickLink II	Y	N	lifetime	792
N	S	N	N	n/a	n/a	n/a	n/a	MTEZ	Y	N	lifetime	793
S	N	S	N	N	Y	N	Y	FaxTalk	Y	Y	2 years	794
S	N	S	N	N	Y	N	Y	WinFax	Y	Y	2 years	795
S	N	N	N	Y	Y	N	N	BitCom, BitFax	Y	Y	1 year	796
S	N	N	N	N	N	N	N	BitCom	Y	N	1 year	797
N	N	N	N	Y	Y	Y	Y	abcFax	Y	Y	1 year	79B
H	H	H	N	Y	Y	Y	Y	abcFax	Y	Y	1 year	799
H	S	S	S	n/a	n/a	n/a	n/a	MagicSoft	Y	N	2 years	800
H	N	N	H	n/a	n/a	n/a	n/a	MTEZ	Y	Y	2 years	801
H	H	H	N	n/a	n/a	n/a	n/a	MTEZ	Y	Y	2 years	802
N	N	N	N	n/a	n/a	n/a	n/a	Carbon Copy Plus	Y	N	2 years	803
H	H	H	N	N	Y	Y	Y	Worldport Fax SW	Y	Y	2 years	804
N	N	N	N	n/a	n/a	n/a	n/a	N	N	N	3 years	805
S	N	N	N	n/a	n/a	n/a	n/a	BitCom	Y	Y	1 year	B06
S	N	N	N	Y	Y	N	N	BitFax, BitCom	Y	Y	1 year	807
S	S	S	N	N	Y	Y	Y	QuickLink II	Y	Y	7 years	80B

For more information about all products in this table, circle reader service no. 911.

Many have a drag-lock option. This feature is necessary on most small devices because it's often difficult to hold down the primary button while rolling the cursor around the screen. Most have LEDs to indicate that you're in drag-lock mode.

Connector cord lengths start at 26 inches, and most have extensions. All are Microsoft Mouse compatible, so you can plug in and start clicking straight out of the box.

No Place Like Home

What about when you need to hook up to the LAN? Since notebooks and palmtops lack slots, it's impossible for you to install an ordinary network interface card.

Luckily, seven companies have crafted LAN adapters

that attach to any PC-compatible parallel port. An eighth, Megahertz Corporation, offers adapters that connect to the proprietary bus port on the back of certain portables, providing faster performance.

Most of these units are the size of a pack of cigarettes. The IQ Technologies p.LAN adapters are bigger: 6 inches by 7 inches by 2 inches. Their cases sport LEDs that let you monitor network activity, and include a "pass-through" parallel port, which lets you use a parallel printer and the LAN simultaneously. The Intellicom and Xircom models also let you use both a printer and the LAN, but to print with the Xircom you'll need a $95 parallel port multiplexer option.

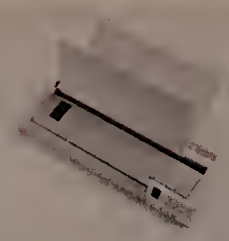
The Megahertz External Ethernet Adapter is compatible with drivers for the popular Western Digital 8003 EB network card, so you can use any driver intended for that card. All the other adapters require you to load software drivers for specific networks.

The Xircom products offer the widest selection of software drivers, while the Accton RingPocket supports token ring network card drivers plus a variety of others. The adapters table lists the LAN operating systems that each model supports, but consult the manufacturer for the latest, most accurate information.

Portable LAN adapters are now an attractive alternative to expensive docking stations. If you need to use your laptop as a desktop PC—or just want to get files on and off the LAN quickly while you're at the office—one of these products may be an ideal solution.

Susan Lusty and Jeff Bertolucci are assistant editors, Eric Brown is a senior editor, and Dan Tynan and Brett Glass are contributing editors for PC World.

PRINTERS



Manufacturer	Product	Price	Type	Weight with battery (lbs.)	Dimensions (inches)	Maximum resolution (dpi)
AXONIX	Milwrite	$1395	dot matrix	7.5	10 x 14 x 4	240 x 240
CANON	BJ-10ex	$499	bubble jet	4.6	12.3 x 8.5 x 1.8	360 x 360
CITIZEN AMERICA	PN48	$469	thermal fusion	2.5	11.7 x 3.5 x 2	360 x 360
EASTMAN KODAK	Diconix 180si	$399[3]	ink jet	3.5	6.5 x 10.8 x 2	192 x 192
ITRON	RP42	$1095	dot matrix	3.1	7.8 x 5.9 x 3.1	300 x 300
MANNESMANN TALLY	MT 735	$1295	thermal transfer	8.3	11.4 x 8.7 x 2.3	300 x 300
SEIKOSHA AMERICA	Seikosha LT-20	$499	dot matrix	6.4	14.6 x 11.3 x 2	360 x 180
STAR MICRONICS	Starjet SJ-48	$499	ink jet	4.6	8.5 x 12.2 x 1.7	360 x 360
TOSHIBA	ExpressWriter 201	$499	thermal transfer	2.5	1.7 x 11.9 x 3.1	180 x 180

[1] P = parallel, S = serial.
[2] Option costs extra.
[3] Serial version $419.
[4] RP42 uses special paper.

WHERE TO BUY

Accton Technology Corp.
46750 Fremont Blvd.
#104
Fremont, CA 94538
800/926-9288,
510/226-9800

Appoint
7026 Koll Center Pkwy.
#230
Pleasanton, CA 94566
800/448-1184,
510/417-0614 (fax)

Archtek America Corp.
18549 E. Gale Ave.
City of Industry, CA
91748
818/912-9800

Axonix Corp.
1214 Wilmington Ave.
Salt Lake City, UT 84106
800/866-9797,
801/466-9797

Best Data Products, Inc.
9304 Deering Ave.
Chatsworth, CA 91311
800/632-2378,
818/773-9600 (CA)

Canon USA, Inc.
One Canon Plaza
Lake Success, NY
11042
800/848-4123,
516/488-6700

Citizen America Corp.
2450 Broadway #600
P.O. Box 4003
Santa Monica, CA
90411-4003
800/477-4683

CompuLAN Technology, Inc.
180 Charcot Ave.
San Jose, CA 95131
800/486-8810,
408/954-8299 (fax)

Computer Peripherals, Inc.
667 Rancho Conejo
Blvd.
Newbury Park, CA
91320
800/854-7600,
805/499-5751

D-Link Systems, Inc.
5 Musick
Irvine, CA 92718
714/455-1688,
714/455-1779 (BBS)

Eastman Kodak Co.
901 Elmgrove Rd.
Rochester, NY 14653
800/344-0006

E-Tech Research
3525 Ryder St.
Santa Clara, CA 95051
800/328-5538,
408/730-2488 (fax)

Everex Systems, Inc.
48431 Milmont Dr.
Fremont, CA 94538
800/628-3837

Galaxy Networks
9348 De Soto Ave.
Chatsworth, CA 91311
818/998-7851,
818/998-1758 (fax)

GVC Technologies
99 Demarest Rd.
Sparta, NJ 07871
800/289-4821

Hayes Microcomputer Products, Inc.
P.O. Box 105203
Atlanta, GA 30348-5203
404/441-1617

IBM Corp.
1133 Westchester Ave.
White Plains, NY 10604
800/426-9292

Image Communications
6 Caesar Pl.
Moonachie, NJ 07074
201/935-8880,
201/935-6548 (fax)

Intellicom, Inc.
20415 Nordhoff St.
Chatsworth, CA 91311
818/407-3900

IQ Systems Corp.
22032 23rd Dr. SE
Bothell, WA 98021
800/227-2817,
206/483-3555

Itron
E. 15616 Euclid
Spokane, WA 99216
800/635-5461,
509/924-9900

Logicode Technology, Inc.
1817 DeHavilland Dr.
Newbury Park, CA
91320
805/499-4443,
805/499-8588 (fax)

RAM buffer standard/ maximum	SPEED Draft mode (cps)	Near letter quality (cps)	Letter quality (cps)	Ports[1]	Resident fonts	Supports down-loaded fonts	Emulations	Paper capacity (sheets)	Built-in sheet feeder	Prints envelopes	Prints transpar-encies	Warranty (months)	Reader service number
2MB/8MB	240	48	n/a	P,S	4	Y	FX	1	[2]	Y	Y	24	705
37K/37K	83	83	83	P	7	Y	LQ-510	1	[2]	Y	Y	12	706
4MB/4MB	80	n/a	80	P	2	Y	LQ-510	1	N	Y	Y	12	707
2MB/2MB	180	n/a	36	P,S	4	N	FX85	1	N	N	Y	12	708
1MB/1MB	100	100	n/a	S	1	Y	LQ-510	[4]	N	N	N	3	709
1MB/1MB	796	796	796	P	14	Y	LQ-850	80	Y	N	Y	12	710
1MB/12MB	180	n/a	60	P	1	Y	none	50	Y	N	N	24	711
28K/28K	166	166	166	P	2	Y	LQ-850	1	[2]	Y	N	24	712
512K/512K	53	63	42	P	2	Y	LQ-2550	1	N	Y	Y	24	713

For more information about all products in this table, circle reader service no. 908.

INPUT DEVICES

Manufacturer	Product	Price	CONNECTOR Serial	PS/2	Number of keys	Trackball diameter (inches)	Resolution (dpi)	Drag-lock option	Laptop attachment	User-adjustable speed/ sensitivity[1]	Number of drivers available	Utilities available	Warranty	Reader service number
APPOINT	MousePen Professional	$99	Y	Y	2	0.4	150	N	n/a	H,S	2	Menu Maker	1 year	757
	Thumbelina	$99	Y	Y	2	0.3	150	Y	bracket	S	2	none	1 year	757
IBM	IBM PS/2 Trackpoint	$159	N	Y	4	1.3	200	Y	n/a	S	1	control panel menus	1 year	758
LOGITECH	TrackMan Portable	$169	Y	Y	3	1	200	Y	bracket	S	2	Windows hot keys	life-time	759
MICROSOFT	BallPoint Mouse	$175	Y	Y	4	1.1	400	N	bracket	S	2	mouse menus	1 year	760
MICROSPEED	MicroTrac	$90	Y	Y	3	0.8	400	Y	dual lock	S	1	KeyMap, Precision Pointer	life-time	761
MOUSE SYSTEMS	The Little Mouse/ PC	$135	Y	Y	2	n/a	300	N	n/a	S	2	Ultra-Res Software, Designer DOS	life-time	762
SUNCOM TECHNOLOGIES	IController	$100	Y	N	3	n/a	200[2]	N	dual lock	H	1	none	5 years	763

[1] S = software, H = hardware. [2] Approximately.

For more information about all products in this table, circle reader service no. 910.

WHERE TO BUY

Logitech, Inc.
6505 Koiser Dr.
Fremont, CA 94555
800/231-7717,
510/795-8500

Macronix, Inc.
1348 Ridder Park Dr.
San Jose, CA 95131
800/468-4629,
408/453-8088

Mannesmann Tally
P.O. Box 97018
8301 S. 180th St.
Kent, WA 98064-9718
800/843-1347,
206/251-5524

Megahertz Corp.
4505 S. Wasatch Blvd.
Salt Lake City, UT 84124
800/527-8677,
801/272-6000

Microcom, Inc.
500 River Ridge Dr.
Norwood, MA 02062
800/822-8224,
617/551-1000

The Briefcase Office

Ever been stuck at the airport or in a hotel lobby, working on a spreadsheet on your notebook computer and wishing you had access to files back on your office PC? Sure, you could use your modem to make the connection—if you could find a phone jack.

The Business Center may be the answer. It's a 20-pound briefcase containing a Tandon 386SX notebook, a Motorola cellular telephone, a Citizen portable printer, a fax-modem, and all the cables and connectors necessary to give you truly portable computing. Targeted at salespeople, technicians, and executives, the Business Center, from Texas-based Automated Computer Technology (ACT), costs $6995 with the printer and $6595 without. ACT expects street prices to fall under $6000. NEC offers a comparable product that costs a bit less—$5599—but its unit lacks a portable printer.

Designed specifically as a docking station for its internal components, the Business Center case features a single plug that enables you to run or recharge the notebook PC, the cellular phone, and the printer by using a single AC outlet. Its rechargeable battery provides at least 2 hours of portable power. If you're in a car, you can use the 12-volt cigarette lighter to power the Business Center (the cabling is included).

Though the concept is appealing, the execution still needs work: The bulky briefcase is a hassle to carry around, and since you can't remove the Motorola cellular phone from the briefcase, you can't use it separately. However, ACT says it'll soon introduce a version of the Business Center that has a removable NEC cellular phone. That will certainly help, though the real dream for the road-hardened businessperson would be a lightweight notebook complete with an internal fax-modem and a small, detachable cellular phone. Still, if you need a portable office now, the Business Center fills the bill.
—Jeff Bertolucci

Business Center
$6595, with printer $6995; Automated Computer Technology; 800/521-9237, 713/568-1778

ETHERNET ADAPTERS

Manufacturer	Product
ACCTON TECHNOLOGY	EtherPocket
COMPULAN TECHNOLOGY	E50, ET50, E50U
D-LINK SYSTEMS	Ethernet Pocket LAN Adapter
INTELLICOM	TPair-PNA
IQ TECHNOLOGIES	p.LAN
MEGAHERTZ	External Ethernet Adapter
SOLECTEK	LAN-CX, LAN-10BT
XIRCOM	Pocket Ethernet

[1] Extra-cost option.

ARCNET ADAPTERS

Manufacturer	Product
COMPULAN TECHNOLOGY	A50
D-LINK SYSTEMS	ARCnet Pocket LAN Adapter
IQ TECHNOLOGIES	p.LAN
SOLECTEK	LAN-ARC
XIRCOM	Pocket ARCnet

[1] Extra-cost option.

TOKEN RING ADAPTERS

Manufacturer	Product
ACCTON TECHNOLOGY	RingPocket
IQ TECHNOLOGIES	p.LAN
MEGAHERTZ	External Token Ring Adapter
XIRCOM	Pocket Ethernet

[1] 16 Mhz only. [2] Extra-cost option.

WHERE TO BUY

Micro Electronic Technologies, Inc.
35 South St.
Hopkinton, MA 01748
800/766-7466,
508/435-6481 (fax)

Microsoft Corp.
One Microsoft Way
Redmond, WA 98052
206/882-8080

MicroSpeed Inc.
44000 Old Warm Springs Blvd.
Fremont, CA 94538
800/232-7888,
510/490-1403

Mouse Systems Corp.
47505 Seabridge Dr.
Fremont, CA 94538
510/656-1117,
510/656-4409 (fax)

OmniTel, Inc.
3500 W. Warren Ave.
Fremont, CA 94538
510/490-2202,
510/490-1285 (fax)

	INTERFACE			COMPATIBLE NETWORKS									
Price	Thin ethernet	10BaseT	AUI	NetWare	NETBIOS	TCP/IP	PC-NFS	Banyan VINES	NDIS	DECnet	Other	Allows parallel printing	Reader service number
$399	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	N	688
$259	Y	Y	Y	Y	N	N	N	N	N	N	N	N	689
$495	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	690
$399	N	Y	N	Y	N	N	N	N	Y	N	N	Y	691
$595	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	692
$599	Y	[1]	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	693
$450	Y	[1]	N	Y	Y	Y	Y	Y	Y	N	N	N	694
$495	Y	[1]	Y	Y	Y	Y	Y	Y	Y	Y	Y	[1]	695

For more information about all products in this table, circle reader service no. 905.

	CABLING SYSTEMS		COMPATIBLE NETWORKS									
Price	Coaxial	Twisted pair	NetWare	NETBIOS	TCP/IP	PC-NFS	Banyan VINES	NDIS	DECnet	Other	Allows parallel printing	Reader service number
$229	Y	Y	Y	N	N	N	N	N	N	N	N	696
$295	Y	Y	Y	Y	N	N	N	N	N	Y	N	697
$495	Y	Y	Y	N	N	N	N	N	N	N	Y	698
$360	Y	N	Y	Y	Y	N	Y	Y	N	N	N	699
$395	Y	Y	Y	Y	N	N	N	Y	N	Y	[1]	700

For more information about all products in this table, circle reader service no. 906.

		CABLING SYSTEMS		COMPATIBLE NETWORKS								
Price (4 MHz)	Price (16 MHz/ 4 MHz)	Type 1 cable	Type 3 cable	NetWare	NETBIOS	TCP/IP	PC-NFS	Banyan VINES	NDIS	DECnet	Allows parallel printing	Reader service number
n/a	$799	Y	Y	Y	N	N	N	N	Y	N	N	701
$845	$995	Y	Y	Y	Y	Y	N	Y	Y	N	Y	702
n/a	$999	Y	[1]	Y	Y	N	N	N	N	N	Y	703
$845	$895	Y	Y	Y	Y	Y	Y	Y	Y	Y	[2]	704

For more information about all products in this table, circle reader service no. 907.

Practical Peripherals
31245 La Baya Dr.
Westlake Village, CA 91362
800/442-4774,
818/706-2474 (fax)

Seikosha America
10 Industrial Ave.
Mahwah, NJ 07430
201/327-7227

Solectek Corp.
6370 Nancy Ridge Dr.
#109
San Diego, CA 92121
800/437-1518,
619/457-2681 (fax)

Star Logic, Inc.
238 E. Caribbean Dr.
Sunnyvale, CA 94089
800/800-5632,
408/747-0954 (fax)

Star Micronics America, Inc.
420 Lexington Ave.
#2702
New York, NY 10170
212/986-6770

Suncom Technologies
6400 W. Gross Point Rd.
Niles, IL 60648
708/647-4040,
708/647-7828 (fax)

Sunhill NIC, Inc.
500 Andover Park E
Seattle, WA 98188
206/575-4131

Telebit Corp.
1315 Chesapeake Terr.
Sunnyvale, CA 94089
800/835-3248

U.S. Robotics, Inc.
8100 N. McCormick Blvd.
Skokie, IL 60076
800/342-5877,
708/982-5001

VoCal Technologies
3032 Scott Blvd.
Santa Clara, CA 95954
408/980-5181,
408/980-8709 (fax)

Xircom, Inc.
26025 Mureau Rd.
Calabasas, CA 91302
818/878-7600,
818/878-7630 (fax)

Zoltrix
47517 Seabreeze Dr.
Fremont, CA 94538
510/657-1188,
510/657-1280 (fax)

Zoom Telephonics
207 South St.
Boston, MA 02111

MULTIMEDIA. POWERFUL. SEXY. FUN. IN YOUR HOME. TODAY.

MPC WORLD

multimedia \mul-ti-med-i-a\ n
1 : PC applications that incorpor
sound, video, and animation. *2* :
hottest buzzword in the PC indust

GET THE FIRST LOOK at what the multimedia PC experience can mean in your life. Imagine the excitement of an encyclopedia that talks to you, PC games that rival the quality of the video arcade, being able to listen to– and even compose!– music on your home PC with CD player sound. Want to layer a soundtrack and titles on your favorite home video? It's no problem with today's surprisingly affordable systems and software. Affordable and powerful– today's multimedia PCs do double duty when you decide to bring work home. They're powerful enough to handle the business applications you use at the office, as well as the entertainment and education applications you'll enjoy at home.

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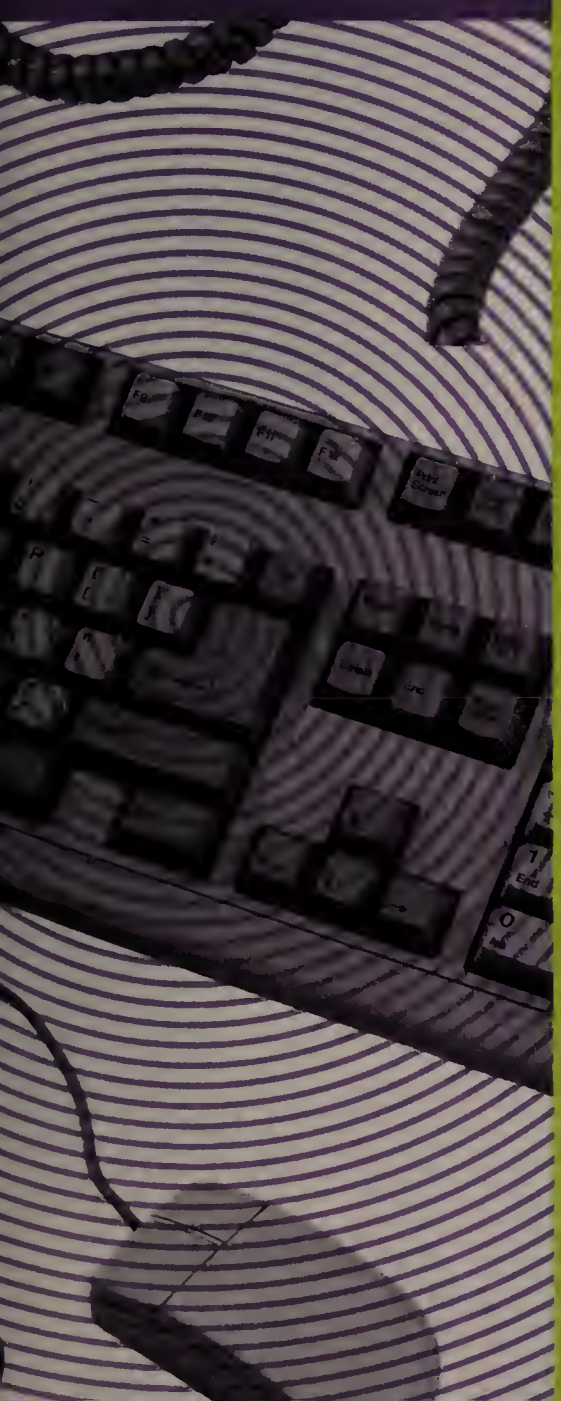

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Tips for the Road

THE MOBILE PROFESSIONAL'S TRAVEL GUIDE

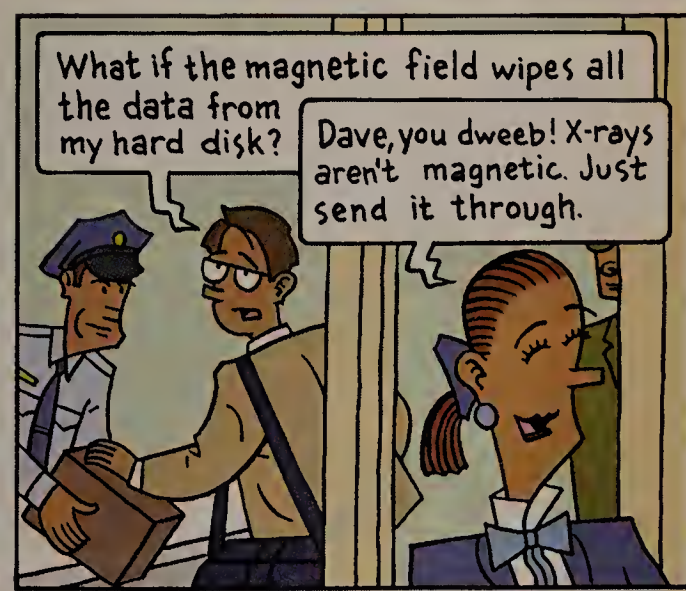
by Bronwyn Fryer

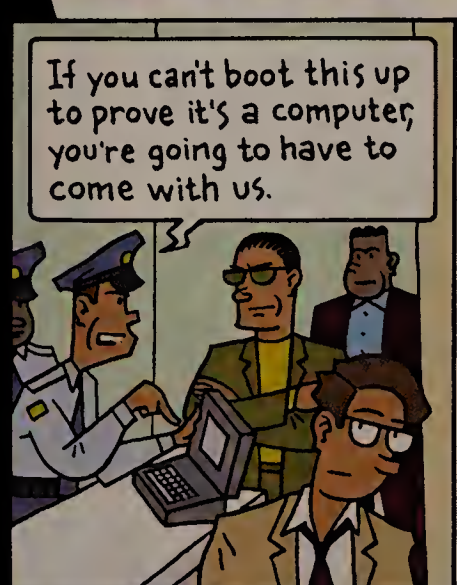
and Steve Fox

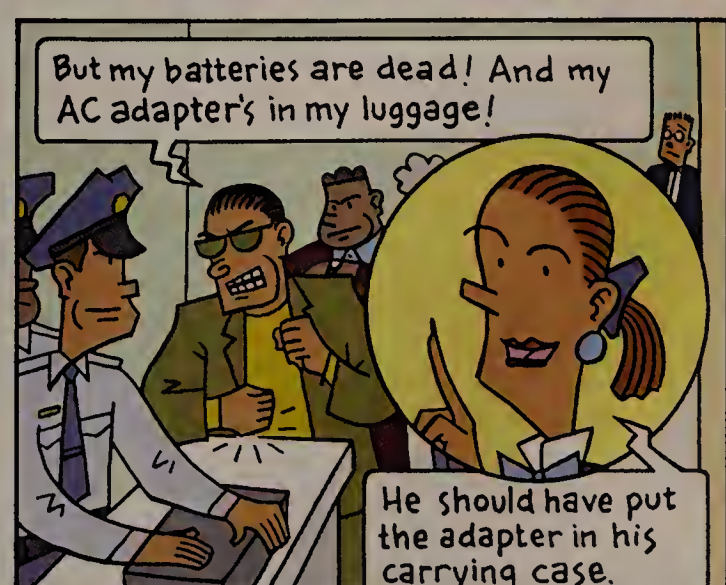
Art by Robert Kopecky

DAVE AND DARLA, EXECUTIVES WITH TIMESYNC INC, ARE ON THEIR WAY TO GOTHAM TO MAKE A BIG PITCH TO ENORMCO ENTERPRISES, A FORTUNE 500 COMPANY. EVERYTHING IS AT STAKE. IF THEY WIN, TIMESYNC WILL PUMMEL THE COMPETITION; IF THEY LOSE, THEY'LL BE LOOKING FOR OTHER JOBS.

ARMED ONLY WITH NOTEBOOK AND LAPTOP COMPUTERS, THE SOFTWARE THEY NEED, AND THEIR OWN RESOURCEFULNESS, DAVE AND DARLA ARE ABOUT TO CONFRONT SEVERAL COMMON COMPUTING-ON-THE-ROAD PROBLEMS.







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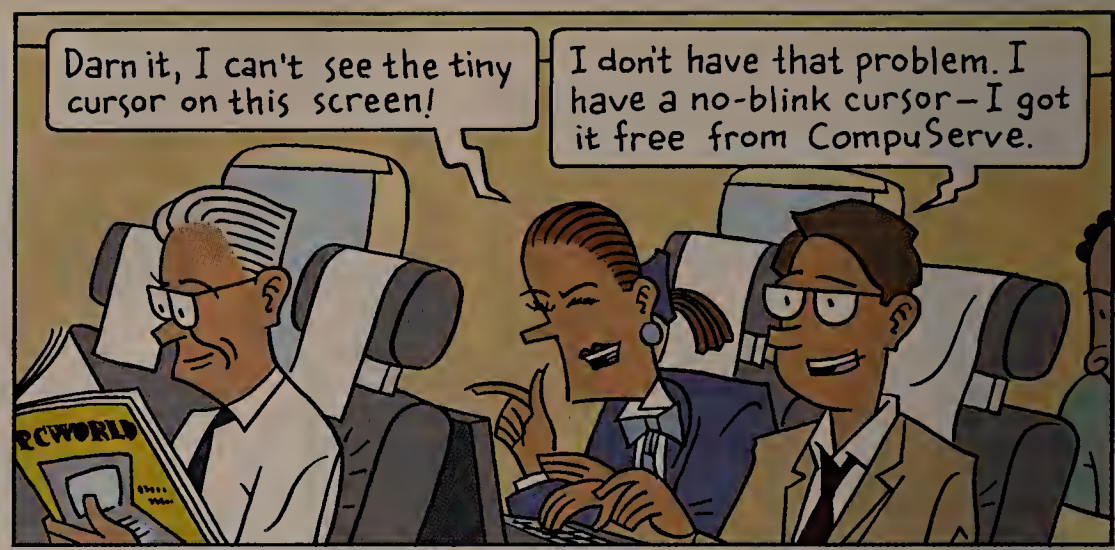
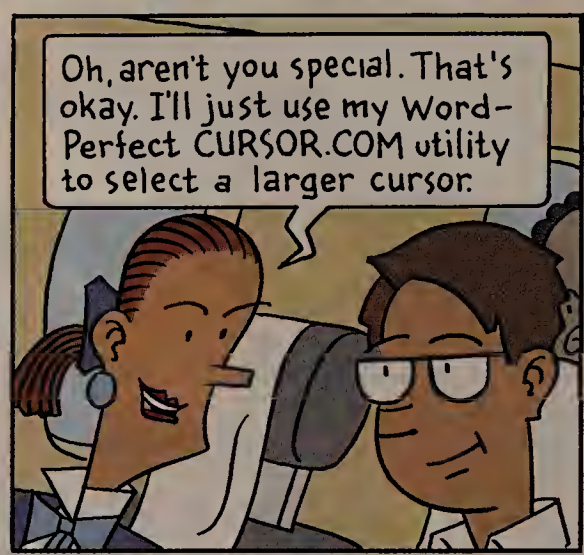
WHEW! We made it!
Welcome aboard.

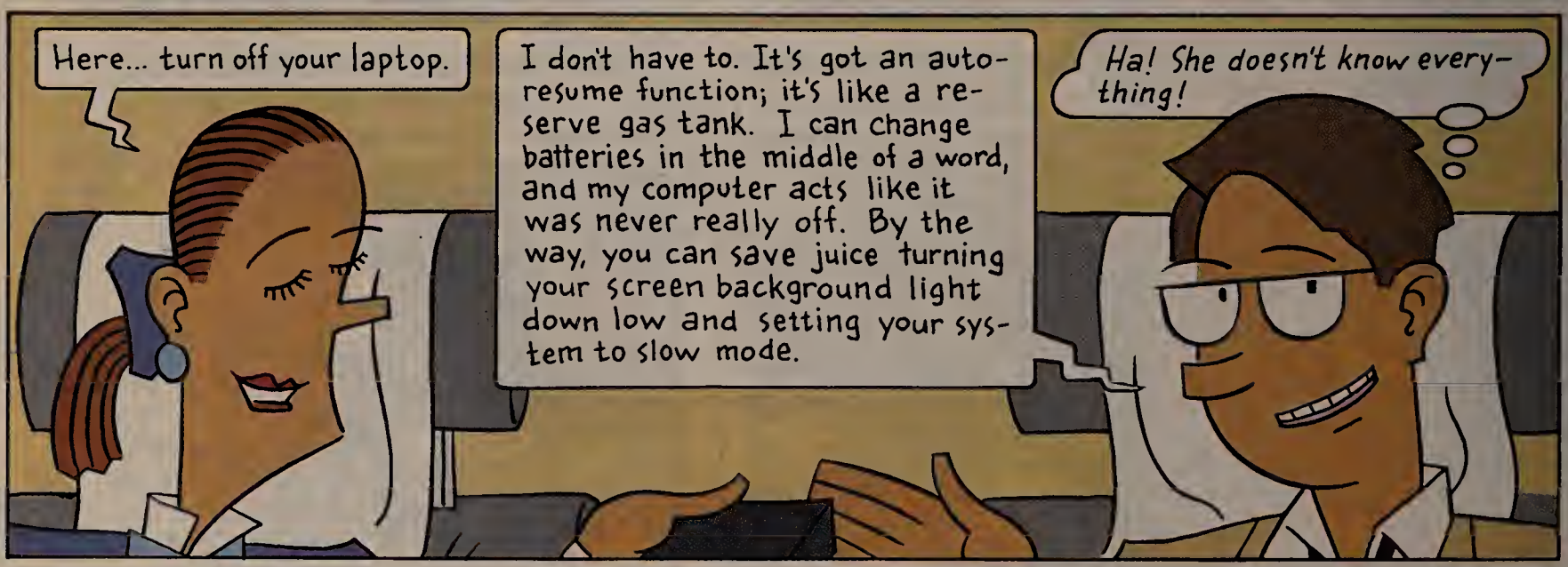

Darn it, I can't see the tiny cursor on this screen!
I don't have that problem. I have a no-blink cursor—I got it free from CompuServe.

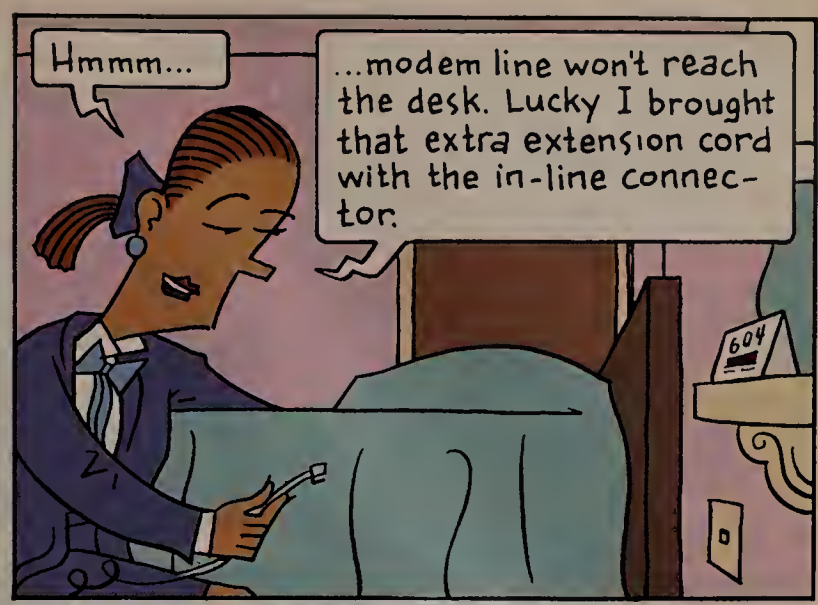

Oh, aren't you special. That's okay. I'll just use my WordPerfect CURSOR.COM utility to select a larger cursor.

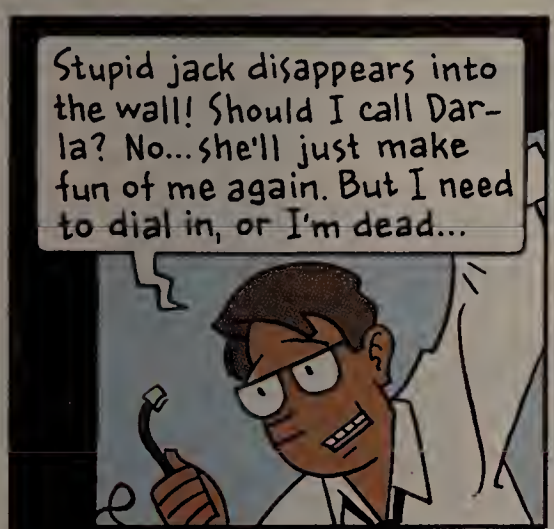
BEEP!
BEEP!

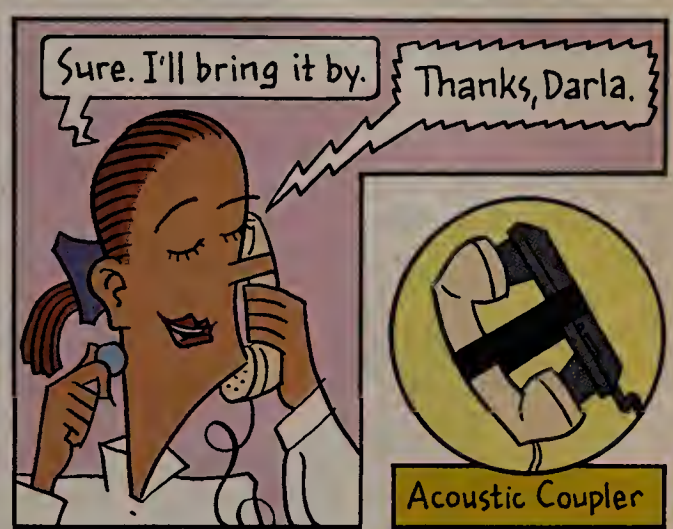
Didn't you remember to recharge your laptop last night?
Well... I uh...
BEEP!
BEEP!

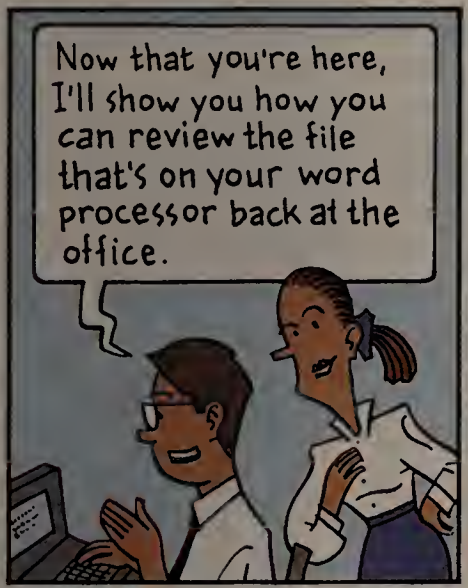
Oh Dave... here, you can have my batteries. I always carry extras.
Uh... thanks.
BEEP!
BEEP!

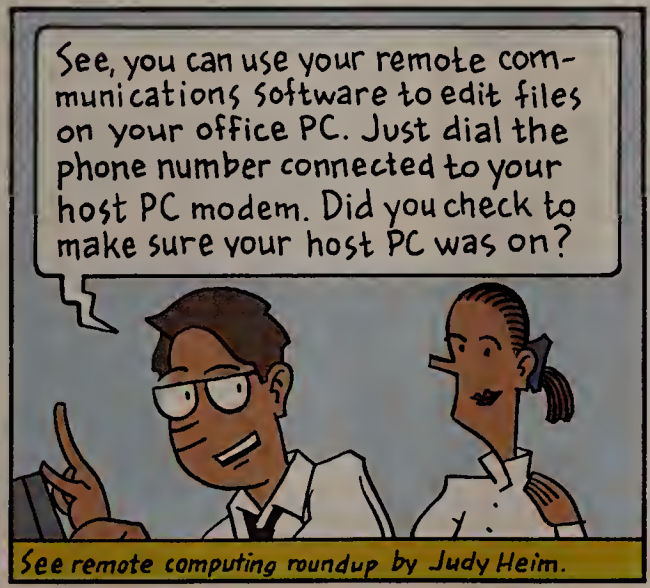

Here... turn off your laptop.
I don't have to. It's got an auto-resume function; it's like a reserve gas tank. I can change batteries in the middle of a word, and my computer acts like it was never really off. By the way, you can save juice turning your screen background light down low and setting your system to slow mode.
Ha! She doesn't know everything!

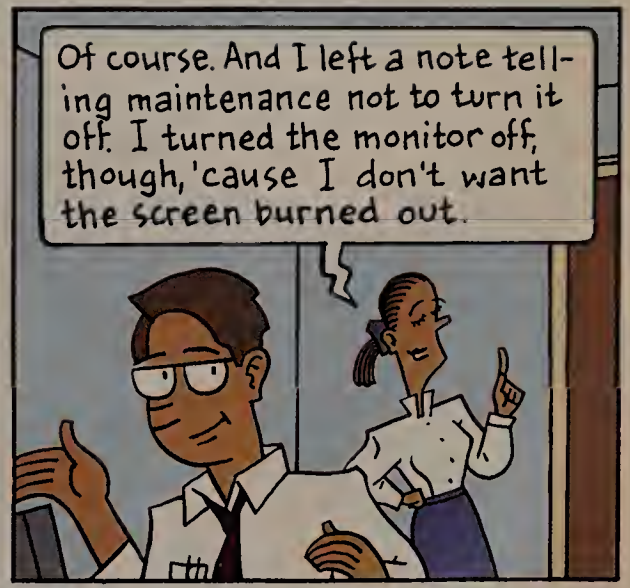


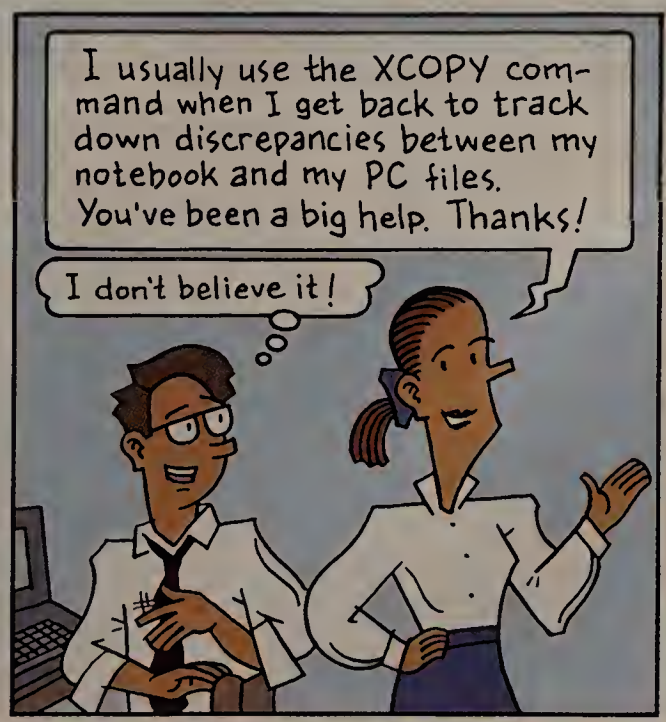




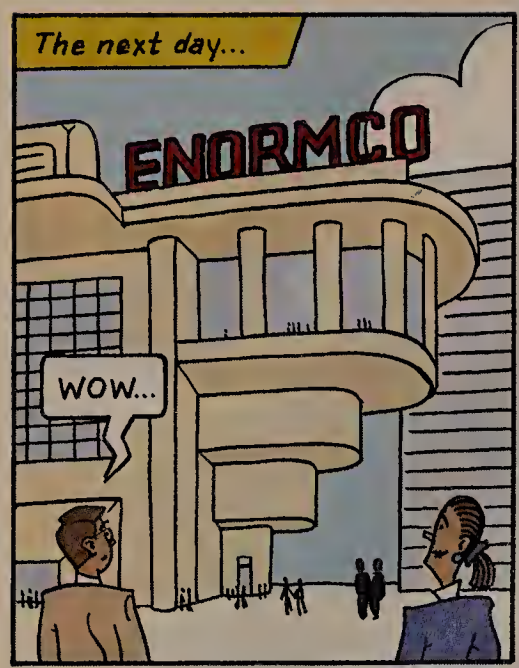






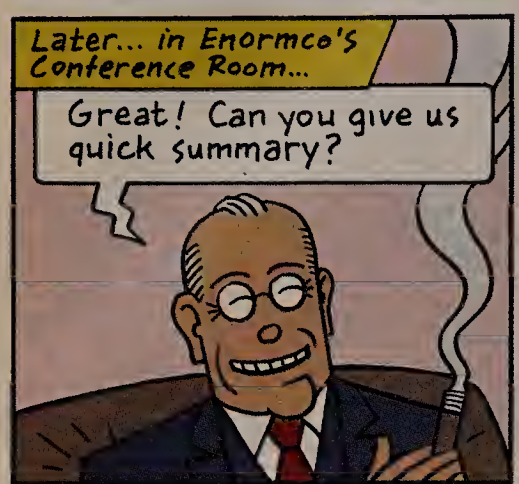


To use XCOPY, put a floppy in laptop's drive A: and type XCOPY C:*.* A:/S/D:02/12/92 (where 02/12/92 is today's date) This copies to drive A: all the files from all subdirectories that have been updated on or later than February 12th.


The next day...
ENORMCO
WOW...

Gee, that's nice of you. Thanks for giving me a user ID so I can print out this presentation.
Glad you called ahead to ask!

Now to hook up!
Terrific - an external LAN adapter!
SYSTE


Later... in Enormco's Conference Room...
Great! Can you give us quick summary?

Sure... I'll jump right to the last slide... Leapin' lizards!
What is it, Dave?
ENORMCO PROFITS

Disk crashed!
No sweat. I brought hard copy.

Boy... I should have brought backups!

Driving back to the hotel...
We've gotta print out that summary to fax to Enormco - but the thermal ribbon on the portable printer ran out last night.

Here... stick this roll of fax paper in the portable printer and leave the ribbon out. The paper is heat sensitive, you can print without the ribbon, and the quality is pretty good.

Looks like you're on a roll!

HOTEL
LARIOT
TAXI

Gotta run... I have an appointment. Catch you later, Dave.
Huh...but...

Wait... the printer!
VROOOMM

Mister, can you spare a dollar?
Sorry, I've got other problems. My partner just took off with the printer...

How am I going to print out that summary?
You staying in this hotel? Use your fax-modem to fax the report to the hotel desk. They'll photocopy it onto paper for you.
Hey, good idea!

You bet. Now that'll be one dollar please.

The next day...
Darla, it's Enormco! WE GOT IT!

HOORAY!!

On the plane...
Ahh...first class.

To TimeSync Inc!
Yep...
TINK!

...It should be smooth sailing from here on in...
The End

Proof You
Gain Weight

*Weight, which includes battery, varies with hard disk size. Suggested retail prices subject to change without notice. © 1992 Everex Systems, Inc. All rights reserved. EVER for EXcellence is a registered trademark, and Everex and Tempo are trademarks of Everex Systems, Inc. KeyMouse is a trademark of KeyTronics, Inc. (Technology licensed from Home Row Inc.) The Intel Inside logo is a trademark of Intel Corporation. Other company and product names are the registered trademarks of their respective holders. GSA Schedule #GS00K91AGS5073.

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Like its predecessor — our critically-acclaimed Tempo LX — the Tempo Carrier offers a collection of features you won't find in any other comparably-priced notebook.

For starters, it's powered by a serious 20MHz *i*386SX™ processor. And with up to 8MB of RAM and your choice of a 40MB or 80MB internal hard drive, the Tempo Carrier delivers more muscle than some of the mightiest desktop PCs.

All of which means it's strong enough to run through all your Windows,™ OS/2 or DOS applications from just about anywhere you happen to be working. Because, as one of the smallest high performance notebooks ever created, the Tempo Carrier fits into a space half the size of this ad.

But building a smaller footprint wasn't our only objective.

In fact, the Tempo Carrier is the world's first notebook to integrate the amazing new KeyMouse.™ This keyboard-controlled pointing device completely eliminates the need for an external mouse or trackball. (If you've tried to use a mouse on an airplane, you know the advantages of that.)

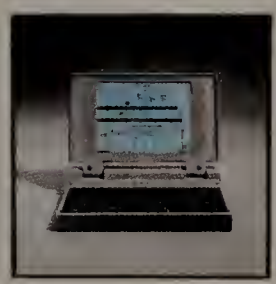
However, if you still prefer to use a traditional mouse, the Tempo Carrier includes a free Microsoft®-compatible mouse. We've also included two serial ports — so you'll still have an additional port free for an external modem, a portable numeric keypad or another serial device — as well as a parallel port, keyboard port and external VGA monitor port for total flexibility.

Speaking of monitors, the Tempo Carrier offers one of the brightest VGA screens in the industry. Our high speed 640 × 480 LCD delivers clear, backlit resolution and 32 shades of grey to help you create desktop-quality spreadsheets and graphics.

And to ensure that you work as productively as possible, our Multi-level Power Management System controls power to the display, hard disk and serial ports for the most efficient use of battery charge. It also provides battery saving Suspend/Resume and SmartSleep capabilities, as well as password-only access for reliable data security. It even allows you to set "hands free" operation by scheduling precise power-up times or enabling incoming modem calls to activate the system.

Considering all the features of the Tempo Carrier, it's hard to believe we loaded so much into such a lightweight package. Even when you combine the system, battery, AC adaptor and power cord into your free padded carrying case, you'll still have a total weight of just 8.2 pounds!

Perhaps the only thing more impressive than how light we kept the weight is how lean we kept the price. In fact, the Tempo Carrier even keeps your budget in shape.



The Tempo Carrier $2,795

- Intel386™SX, 20MHz CPU
- 5.2 Lbs (Including Battery)*
- VGA Backlit Display
- Multi-Level Power Mgmt. System
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- 2MB RAM (Expandable to 8MB)
- 40MB or 80MB Internal Hard Drive
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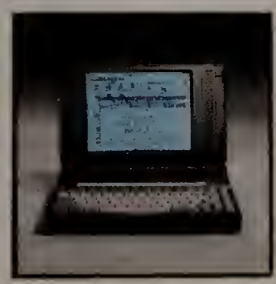
- 80387SX Math Coprocessor Socket



The Tempo LX $2,295

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- VGA Backlit Display
- 2-3 Hours Battery Life
- Power Mgmt. System
- 1-Hour Quick Charge
- Full Travel 82-Key Keyboard
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- 80387SX Math Coprocessor Socket

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Carrying Case	$69 Value

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Commuting by

Modem

A growing number of firms find telecommuting a viable solution to everything from employee dissatisfaction to the high price of office space.

Drag the 6 a.m. alarm, groggy shower, and gritty instant coffee. Forget the long commute, the wait at the toll gate, and the pricey parking lot. Just plug in your modem, boot up your PC, and double your company's productivity and profits—no matter where you are. Too good to be true? In fact, more and more workers are trading in the office and the freeway for the PC and the phone jack. Today an estimated 5.5 million workers telecommute on a part-time basis; that number is expected to grow to 11.2 million by 1995.

Many organizations claim that "telework" has increased productivity as much as 25 percent. And if only 5 percent of the commuters in Los Angeles telecommuted one day a week, they'd keep 41,000 tons of pollutants from entering the atmosphere each year. Given that computer and communications technology is more efficient and widespread than ever, and given the growing problems of gridlock and air pollution, everyone from George Bush to your local department store manager is jumping on the telecommuting bandwagon.

So why aren't we all telecommuting? What sounds easy in theory may be tough to put into practice. Creating a workable arrangement that meets the needs of you and your staff, and benefits the bottom line depends on a variety of factors—including the kinds of jobs involved and management practices.

PC World talked to executives at several organizations, ranging from independent consultants to managers in large corporations. Without exception, they agreed that a successful telecommuting program takes some doing, but the payoffs—increased productivity, flexibility, and benefit to the environment—are often worth the effort.

JULIA GORTON

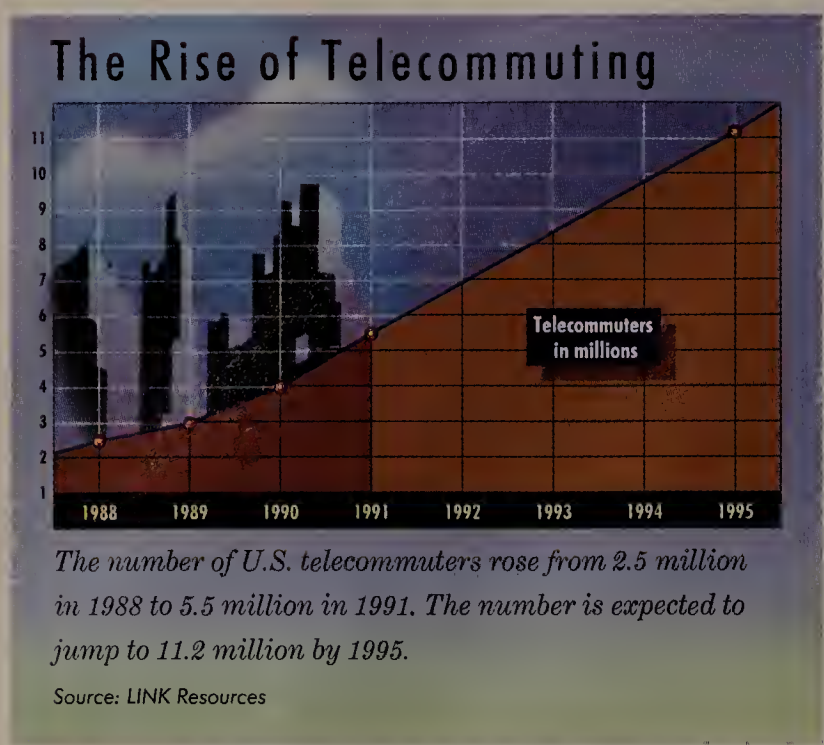
RETHINKING CONTROL

Managers must first confront the idea of losing the physical presence of their staff. "Control is the underlying issue for managers," says Paul Rupert, associate director of New Ways to Work, a San Francisco–based advocacy group. "Fear of losing control will dominate any decision about whether or not someone on the staff can be trusted to produce if they're not physically in the office."

Managers are especially reluctant to confront employees who haven't proven they can handle the responsibility. "Most supervisors deal only with decisions to hire, fire, or give a raise," Rupert says. "They rarely have to look an employee in the eye and deny the request to work from home." Because this requires the exercise of authority in a matter of intense concern to an employee, many managers would rather avoid the issue altogether by setting a "no telecommuting" rule.

A wiser move would be to take a hard look at your management style. "If you're used to managing by objectives and already have a system for measuring success, you'll probably manage remote workers well," says Rupert. "But if you haven't got such a management methodology in place, you'll need to develop it before setting up a telecommuting program."

Bronwyn Fryer



The number of U.S. telecommuters rose from 2.5 million in 1988 to 5.5 million in 1991. The number is expected to jump to 11.2 million by 1995.

Source: LINK Resources

An employee's productivity should be measured not by hours spent physically in the office, but by goals met. "If you measure productivity by sight, you're a foolish manager," says Steve Coulter, an area vice president for San Francisco–based Pacific Bell—its telecommuting program is one of the largest and most successful in the country. "You need to measure results, not presence."

Few managers maintain that every employee can or should work at home. Those jobs that entail frequent, face-to-face interaction with others, lots of supervision, or meeting short-term deadlines should probably stay in the office. And everyone seems to agree that telecommuting should be done only on a part-time basis.

Most companies allow only proven employees to telecommute. But offering the option to a broader group can also produce surprising results from employees who aren't performing up to par. "It's an opportunity to enlist their enthusiasm," says Rupert. "You can dangle the carrot and require them to meet prerequisites, like working well without ongoing supervision. When a problem employee becomes productive, you get a significant payoff." Employees who see telecommuting as a perk have a high incentive to prove it works—and that they can maintain high performance.

SETTING THE GROUND RULES

Even managers who enthusiastically support telework are faced with a variety of issues, including insurance liability for equipment and injuries, security of company information, and tax payments on work space—things that are taken for granted in a traditional office.

Organizations with successful telework programs address these concerns by establishing a set of commonsense ground rules. At Pacific Bell, whose telecommuting program is a model for organizations across the country, more than 1000 managers are teleworkers themselves. The company's written guidelines, which are signed by both supervisors and telecommuters, cover the following issues:

►Insurance: While Pacific Bell provides general medical insurance that applies at all times, employees who choose to work at home establish specific working hours with their supervisors. In this way, an employee who is injured while on the job is eligible for worker's compensation. "But if the company has reason to suspect that a staffer wasn't working on company activities at the time of the injury, then it's up to the employee to prove his or her case," says company spokesperson Craig Watts.

►Accessibility: To make sure that telecommuters are reachable while working at home, Pacific Bell supervisors establish specific times when a person should be at work and able to communicate with the office.

►Safety: Telecommuters are responsible for maintaining the safety of their work area. "On occasion, a supervisor can tour the employee's home office to make sure it meets company standards," Watts notes.

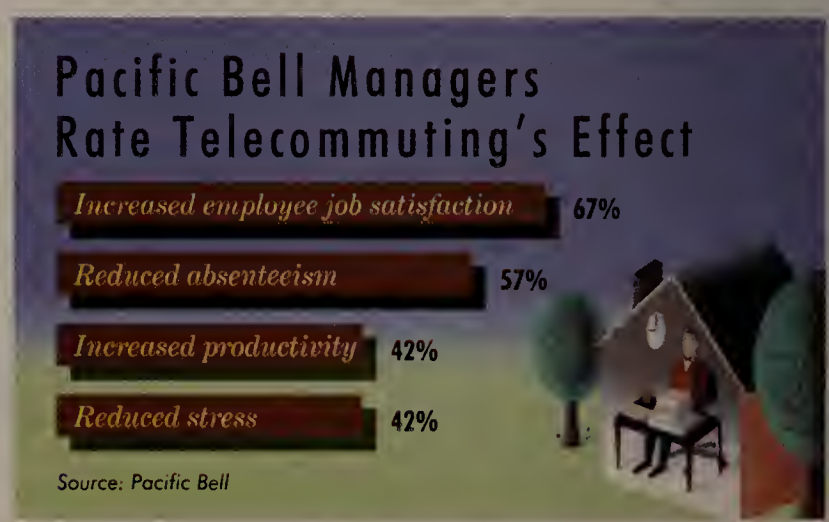
►Equipment: While the company accommodates requests for necessary business equipment such as computers, modems, printers, and fax machines, the telecommuter agrees to absorb office remodeling and furniture costs.

►Information security: Pacific Bell doesn't allow highly sensitive information to leave its corporate offices. When a telecommuter must take proprietary information home, he or she is expected to safeguard it, under lock and key if necessary. Electronic information is less of an issue, according to Watts, because all the company's data bases require password access. But what about floppy disks going back and forth? "It would be no less difficult in the office than it would be at home," Watts says. "It only becomes an issue if there's a problem." So far, he has heard of none.

►Billing: Telecommuters are required to keep accurate records of phone and modem use, and supervisors are rigorous in making sure that telecommuters' phones are used strictly for business.

►Taxes: The onus is on Pacific Bell employees to keep specific records for the IRS and to deduct use of their home work space.

Finally, Watts offers this advice: If telecommuting is new to



Source: Pacific Bell

Six Steps to a Successful Telecommuting Program

1. SELECT THE RIGHT EMPLOYEES FOR TELECOMMUTING. *Telecommuters should be self-motivated and organized and their jobs should require minimal supervision.*

2. TRUST TELECOMMUTERS. *Manage by objectives and results instead of by observation.*

3. SET SPECIFIC GROUND RULES. *A detailed, written agreement accepted by the telecommuter and the supervisor helps assure that all goes smoothly.*

4. INVEST TIME UP FRONT. *Be prepared to spend extra time at the outset in administering, evaluating, and reporting results to senior management.*

5. KEEP TELECOMMUTERS VISIBLE. *Part-time arrangements and regular staff meetings assure that those working away from the office don't get "lost."*

6. START WITH A PILOT PROGRAM. *Research carefully, and look to other areas of the company—especially the sales department—for ideas.*

your company, you should count on investing time up front to take care of these details—just as you would to set up a field office. "It's vital to make sure the employee and the supervisor are in agreement," he adds. "Make sure you cross the *t*'s and dot the *i*'s."

MAINTAINING VISIBILITY

When a department staffer is routinely out of the office, regular communication becomes more important so employees don't "disappear." Most managers of telecommuters meet this challenge by relying heavily on E-mail, voice mail, and electronic file sharing. "I'm in touch with my people more frequently than ever before," notes Fred Brown, senior vice president of the William Carter Company, makers of Carter's children's clothes. "I can see immediately who's working productively and who's not."

Even so, it's easy for people in the company who have less-frequent contact with telecommuters to forget that out of sight doesn't mean out of mind. "Some people are concerned that if they aren't in the office, they may not be in line for more visible positions," says Rupert. To counteract this, he recommends making sure workers aren't out of the office more than a few days a week. GTE national sales manager Steve Koons and Pacific Bell's Coulter also address this problem by arranging monthly meetings with their staffs.

WHERE TO START?

Chances are that the best model for a successful telecommuting organization already exists in your company's sales department. Almost across the board, the companies with successful telecommuting programs started them in sales. "The reason telecommuting works so well in the sales force is that they have already dealt with the organizational, managerial, and physical issues around working out of the office," notes Rupert. Adds GTE's Koons: "If our people meet our requirements by serving our customers and bringing results to the corporation, that's enough for us."

The sales organization's successful pilot program can serve as a model for the rest of the company. Last year, for example, telephone giant AT&T equipped 500 people in its sales force with Safari NSX/20 notebook computers complete with modems, portable printers, cellular telephones, beepers, and E-mail. Representatives now claim that, besides bringing them closer to their customers, the program has improved their productivity by 25 percent and lowered the company's office space overhead by nearly $400,000.

A NEW WAY TO WORK

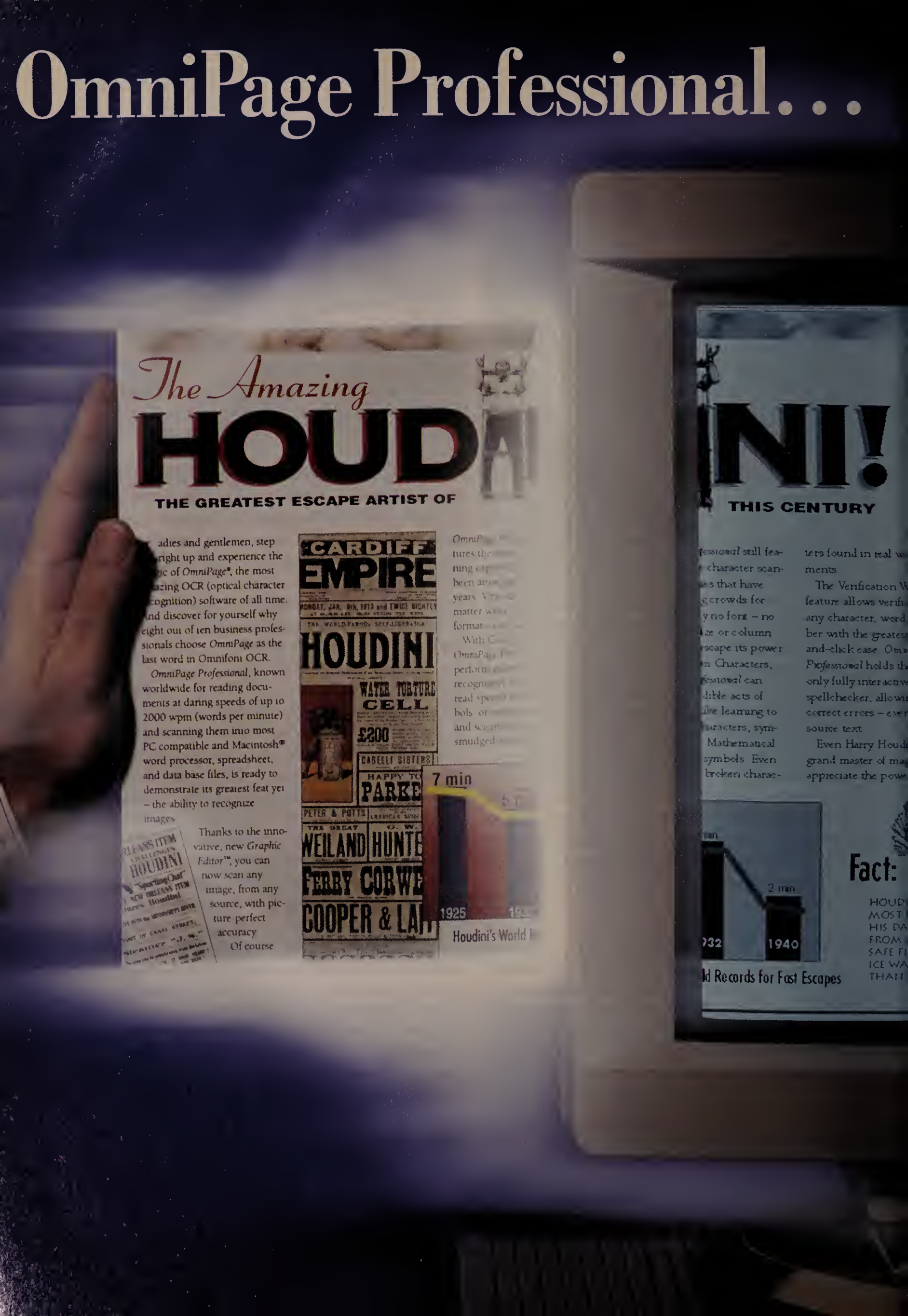
While telecommuting gives a boost to employee morale and productivity, already high producers, especially those who work with portable computers, run the risk of working too much. Val Heil, a district engineer with Texaco's Lubricants Division, uses an Envoy SalesMate system running on a Grid 1520 laptop to work at home, in the office, and on the road. "I can work whenever, wherever I want," says Heil. "But the other side of the coin is that I can never get away from the office." Adds Carter's sales executive Robin Osborne: "I'm putting in more-productive hours. But if you're a workaholic, it's easier to stay addicted."

Few companies, however, complain about overzealous employees. Because teleworkers now enjoy a new level of freedom and independence, their added productivity can result in a huge difference for businesses in today's highly competitive global markets. Business guru Tom Peters—urging managers to break through bureaucracy, flatten organizational structures, and find an innovative way of working—has dubbed telecommuting "the ultimate bureaucracy-bashing tool."

For teleworking programs to pay off, companies must take the time and effort to provide communication, support, and tools. "Telecommuting is symbolic of management openness," says Rupert. "When management puts in the extra effort to make it go smoothly, everyone wins."

Bronwyn Fryer is an associate editor for PC World.

OmniPage Professional...



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Harvard Still Tops in Graphics

Harvard Graphics wins a popularity contest among PC World readers, but Freelance and PowerPoint also enjoy faithful followings.

CHRISTINE WHYTE

Harvard Graphics, Freelance Plus (the latest upgrade is called *Freelance Graphics for DOS 4.0*), and *Microsoft PowerPoint for Windows* are the three most popular PC presentation graphics programs—with *Harvard* the clear leader—according to *PC World*'s 1991 World Class reader poll. In September we telephoned 100 randomly selected users of each program to learn why these products were the favorites.

All three programs received a "very satisfied" rating from survey respondents in regard to overall satisfaction with their product of choice. Respondents' average ratings on ten criteria ranged from "satisfied" to "very satisfied." A majority of each program's users said they would buy the program again.

When our survey respondents shop for a presentation graphics program, they're more interested in results and in a product's intangible qualities than in the nuts-and-bolts features that get the job done. When asked to rank buying criteria, respondents selected quality of output as *the* most important. Next came ease of use, a company or product's reputation, and value for price paid. In this data- and cost-driven world, it's interesting that our survey respondents consider spreadsheets links and price to be the least important features when choosing a graphics program.

Survey respondents weren't disappointed once they put their programs to everyday use. Measured against the four top buying criteria, *PowerPoint* and *Harvard Graphics* edged out *Freelance* for output, ease of use, and company/product reputation. *Freelance* was the value leader, but the other two programs rated almost as high.

We also compared general customer satisfaction with specific features for all three programs. Although ease of use and value ranked second and fourth among buying criteria, those items fell to seventh and fifth place, respectively, when respondents rated satisfaction with their programs. Respondents were most satisfied with company/product reputation, output, presentation features, and charting capabilities.

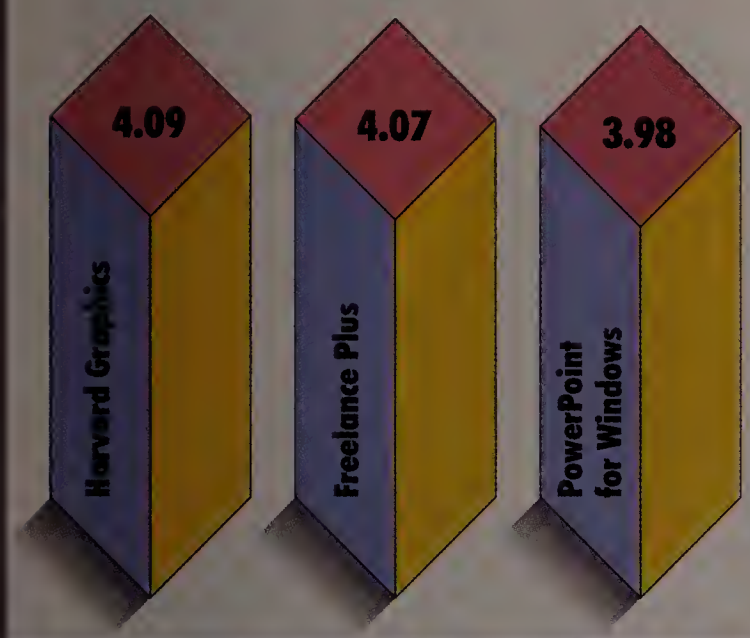
Although the results are not shown in the accompanying charts, we asked our respondents why they would or would not buy the same graphics program again. Those who would buy their program again listed its ability to meet their needs, its ease of use, and its compatibility with their other programs as the top reasons.

The biggest turnoffs were lack of needed features, difficulty of use, and finding products that were superior.

Christine Whyte is a freelance editor in San Francisco.

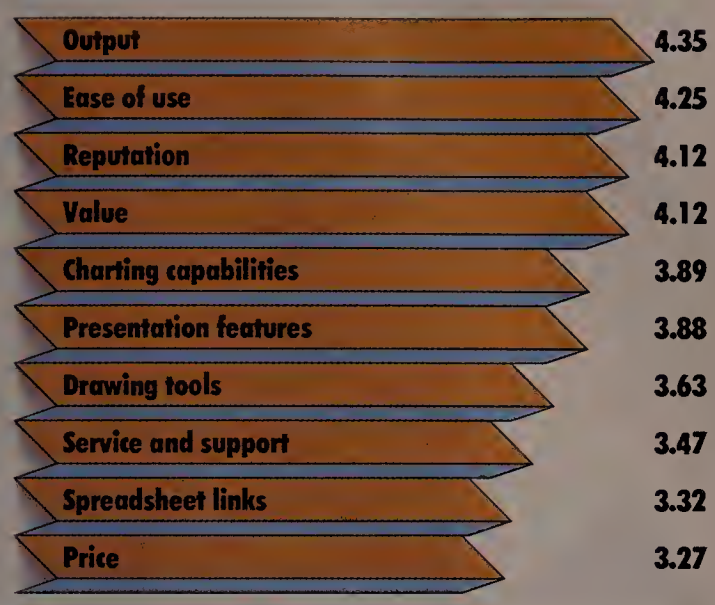
USERS OF ALL THREE PROGRAMS ARE VERY SATISFIED

Overall satisfaction with product, 5=high 1=low



OUTPUT, EASE OF USE MOST IMPORTANT BUYING ISSUES

Users rank important buying criteria, 5=high 1=low



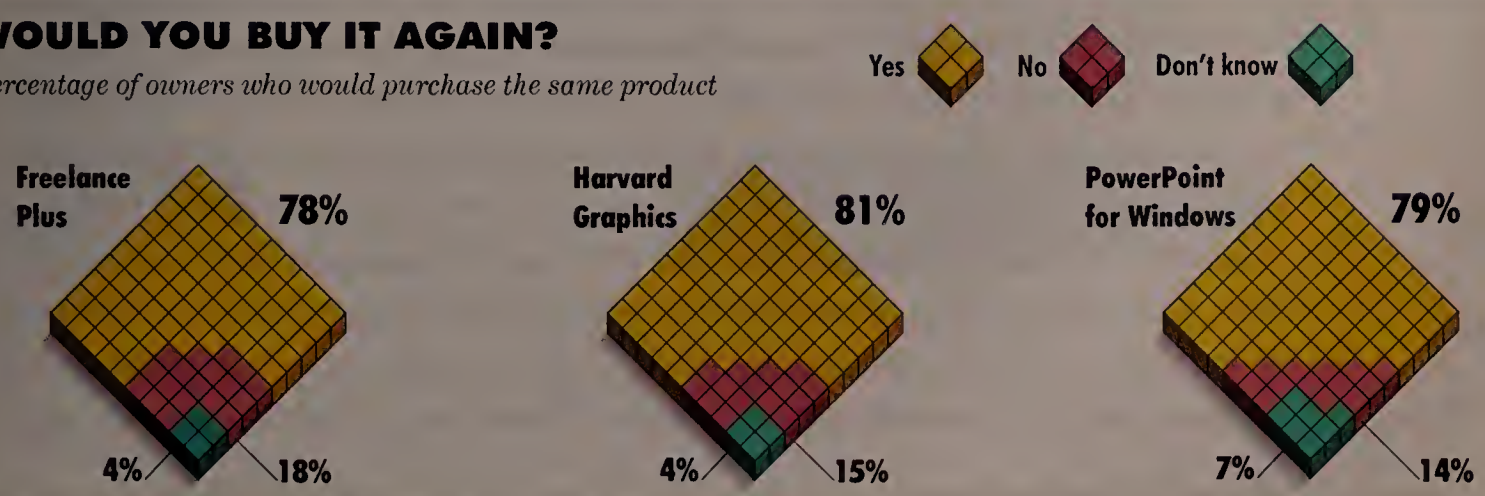
REPUTATION, OUTPUT EARN HIGH RATINGS

Satisfaction with key features, 5=high 1=low

	Overall	Freelance Plus	Harvard Graphics	PowerPoint for Windows
Reputation	4.35	4.27	4.40	4.40
Output	4.14	3.94	4.17	4.30
Presentation features	4.14	3.89	4.20	4.32
Charting capabilities	4.04	4.06	4.09	3.94
Value	4.02	4.05	4.00	4.01
Spreadsheet links	3.98	4.09	3.78	4.04
Ease of use	3.93	3.86	3.97	3.98
Service and support	3.82	3.72	3.75	4.02
Price	3.73	3.89	3.58	3.75
Drawing tools	3.69	3.76	3.66	3.65

WOULD YOU BUY IT AGAIN?

Percentage of owners who would purchase the same product



Source: Data is based on a September 1991 random phone survey of 100 users each of Harvard Graphics, Freelance Plus, and PowerPoint for Windows who purchased their new program or an upgrade within the previous 18 months. This data represents the opinions of the survey respondents.

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Special Report: Best Windows Software

Reviews Ami Pro 2.0 • Excel 3.0
Superbase 4 1.3 • Hollywood 1.0
Ventura Publisher 3.0 • Corel Draw 2.0
Crosstalk for Windows 1.2
cc:Mail for Windows 1.1

New Applications on the Horizon

Seven Super Utilities for Windows

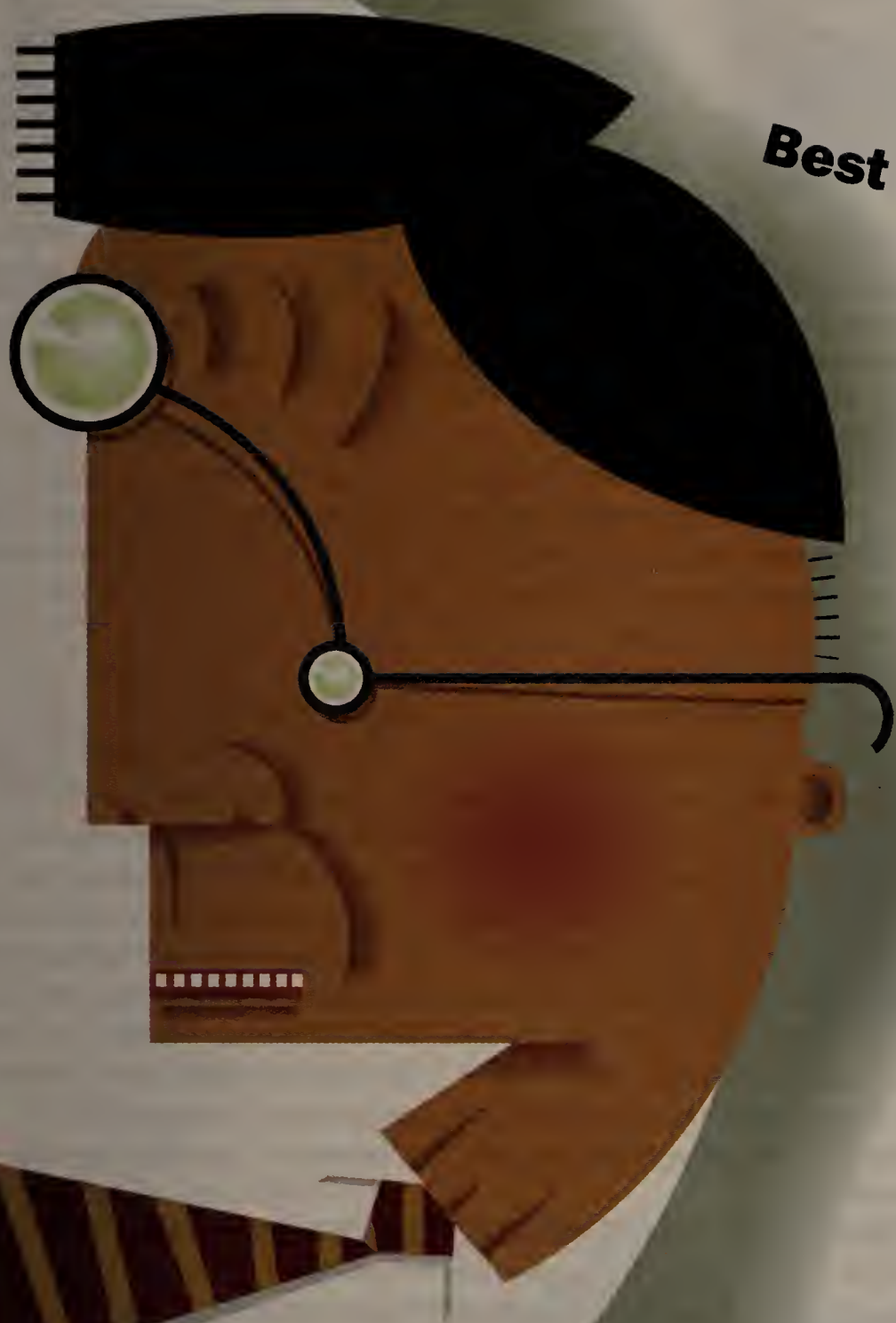
How To: Link Your Windows Applications

ILLUSTRATIONS BY GORDON STUDER

Best of Windows Reviews

Edited by Anita Amirrezvani

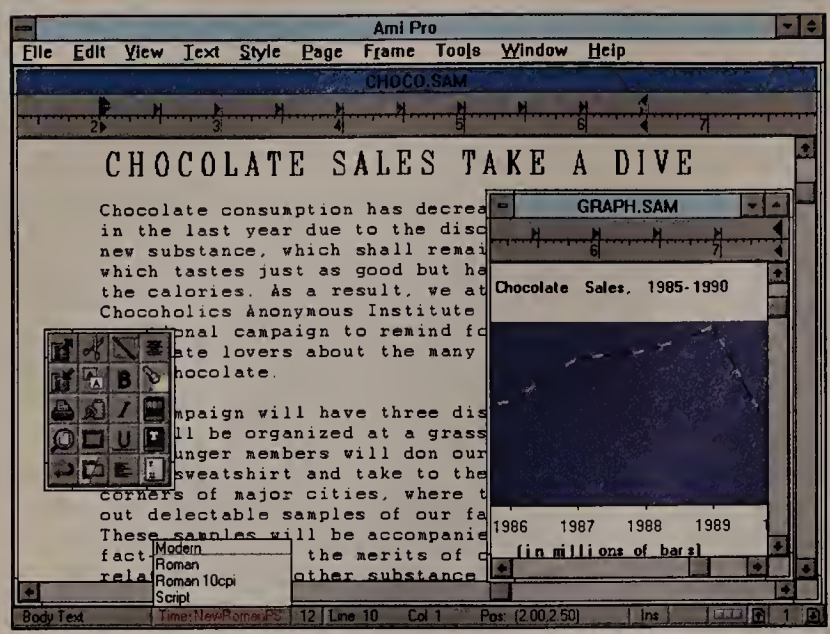
Pull out the stops, Windows fans—you can finally put together a **full suite of Windows** applications without making compromises. Our expert reviewers **selected the best** Windows products in **eight application areas,** making software with a **smooth, engaging interface** a top priority. Since applications continue to change overnight, we also peeked at products just around the corner. Read on to discover the hottest software for a **super Windows workstation.**



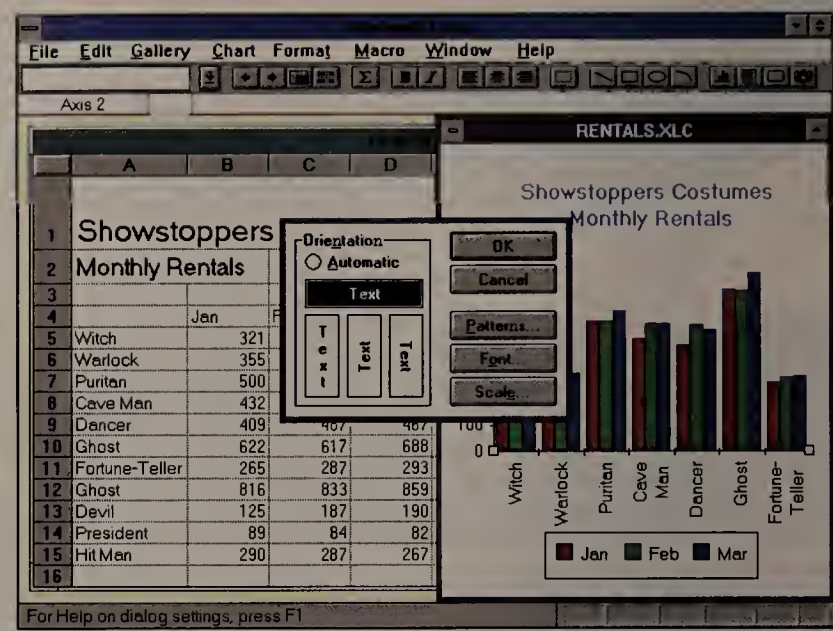
Ami Pro 2.0

Ami Pro 1.2 stands out among *Windows* word processors because of its superbly designed interface and its clear advantage in desktop publishing. Version 2.0 improves on these themes, particularly by allowing you to mold the program to your own working style. You can create a customized group of command buttons, for example, or quickly set tabs, indentations, margins, and fonts using the new formatting ruler and status bar. *Ami Pro*'s most formidable challenger, *Word for Windows 2.0,* also offers major ease-of-use enhancements, but it was released too late to be considered for this review.

Because *Ami Pro* is based on frames (sizable boxes that contain their own formatting), it makes incorporating and editing graphics or text with special effects easy. *Ami Pro* has enhanced its superb charting module so you can manipulate sample charts in a dialog box, adjust perspective, and choose from 16 color schemes. New drawing tools include boxes, arrows, and Bezier curves,



Ami Pro 2.0's improved interface offers pull-up menus, better support for windowing, and a customizable palette of commands.



Navigating through Excel 3.0 is easier than ever. Double-click on an object, and up pops the relevant dialog box.

and you can select from 100 clip-art designs. *Ami Pro* now also includes *Adobe Type Manager*, which generates 13 scalable fonts.

Ami Pro 2.0 finally catches up to *Word for Windows* in work-group computing, providing redlining and the ability to compare different versions of a document. The new outliner helps organize material and collapse and expand documents for different audiences.

Powerhouse capabilities include *Ami Pro*'s conditional operators and macros, which let you create forms that perform calculations, look up sales figures, or generate pick lists. A new equation editor supports scientific applications. *Ami Pro*'s greatest strengths used to lie in its formatting ability and its smooth interface; now it's also a powerhouse for work groups, technical users, and form-intensive environments. —*Eric Brown*

Excel 3.0

PC WORLD BEST BUY

Even a brief session with *Excel 3.0* will convince you that it ranks among the most intuitive packages available. Menu design is super efficient: No matter what you're working on, you can often make the relevant dialog box appear by double-clicking, rather than plowing through menus. Even better, new hypertextlike features transport you from, say, a formula reference over to another worksheet containing the referent cell. Such tricks can make navigation and analysis remarkably smooth.

Creating a new worksheet usually involves a lot of trial and error. *Excel* helps you get organized by providing an outliner that creates a hierarchy in your worksheet of up to seven levels. This is a boon when it's time to address different audiences. For example, you can easily collapse the worksheet and print summary figures for management, then expand it and show the underlying detail to your accountants.

Anyone who creates budgets will appreciate *Excel*'s automatic consolidation feature. Unlike most programs, *Excel* allows you to consolidate worksheets of different sizes and shapes and create links to other files to avoid overcrowding. Frontline Corporation's excellent solver is included for users who need to perform what-if calculations.

To link your worksheet to the data mother lode, *Excel 3.0* comes with *Q+E*, a tool that extracts data from *dBASE*, *Microsoft SQL Server*, and other products. The program also provides formatting styles, a slick help system for *1-2-3* users, and the ability to draw annotations right on the worksheet. As long as you have the hardware to handle it, *Excel*'s well-designed interface and copious toolbox make it the spreadsheet of choice for most budgeting and financial needs. —*Richard Scoville*

Superbase 4 1.3

Until *Paradox for Windows* ships later this year, *Superbase 4* will stand as the only *Windows* data base with the power of DOS-based standards like *d:BASE* and *R:base*. For data base developers, *Superbase* offers a complete programming language, a good forms designer, and an excellent mail merge capability. For other users, however, its interface may be daunting.

Superbase's interface deviates both from *Windows* conventions and from the data base norm. Scroll bars are seldom functional, you can't point to a record and edit it in the Table view, and the program offers no *Paradox*-like query by example. Instead, you pick and choose fields and options from multiple list boxes—a confusing process for all but the simplest queries.

Unlike most packages, *Superbase* allows you to define validation safeguards at the file level, which reduces input errors. Its forms designer (which doubles as a competent report writer) is powerful and easy to use and lets you define complex one-to-many data relationships.

Superbase's application program-

ming language, DML, is modeled on BASIC. Without an automatic application generator, however, intermediate users may have trouble making the leap to programming.

Superbase's excellent mail merge capability makes creating form letters a breeze, and with a $495 add-on, available in January, the program acts as a front end to *Microsoft SQL Server* and other client-server data bases. In many ways, *Superbase* acts like a *Windows* version of *dBASE*, while offering extras such as file-level safeguards. But because the program suffers from a nonstandard interface and poorly organized documentation, it will appeal mainly to dedicated *Windows* developers. —*Paul Litwin*

Hollywood 1.0

The problem with many presentation programs is, the more complicated they are, the fewer organizational tools they offer. But *Hollywood* makes no compromises: It helps organize every element of a presentation while offering sophisticated charting and enhancement features that leave other programs far behind.

Hollywood's organizational tools include an outliner; global editing of an entire presentation's colors, type styles, and so on; and multiple views of each slide, which make it easy to coordinate the master page, notes, and handouts. When it's time to make changes, the slide sorter quickly and efficiently reorganizes slides.

Hollywood's text enhancements compare to those of advanced drawing programs. You can create curved titles, add shadowing and mirror effects, and rotate the lot. The program is especially good at implementing graduated (blended) shades to both objects and backgrounds. Unlike most other software, *Hollywood* lets you preview color schemes and styles in dialog boxes. Scalable Dutch and Swiss fonts from Bitstream are included.

Hollywood supports virtually all important business charts. It even lets you produce combination area-line, dual *y*-axis, and table charts. The program performs curve smoothing and provides a host of other drawing tools, including a paintbrush and spray can for creating unique effects.

To complete your presentation, *Hollywood* automatically generates speaker notes and audience handouts. You can also produce self-running versions of on-screen shows and distribute them to branch offices or clients. With superb organizational tools, sophisticated text enhancement, and advanced drawing capabilities, *Hollywood* leaps ahead of other presentation software.
—*Richard Jantz*

Ventura Publisher 3.0

Like its archrival *PageMaker 4.0*, *Ventura Publisher 3.0* is a superb desktop publishing program with excellent page layout and typographic features. But while *PageMaker*'s ease of use and graphic arts emphasis make it attractive to design-oriented users, *Ventura*'s superior automated features make it the best choice for rapid processing of business documents.

Only *Ventura* automatically numbers headings, paragraphs, tables, figures, pictures, and captions and then—here's the good part—*renumbers* them if you add a new item or move or delete a previously numbered item. Other timesaving features include footnoting, internal cross-referencing, and customized headers and footers that automatically indicate each page's contents—a godsend for producing sales catalogs or data base directories. And for documents that include complex formulas, *Ventura* offers a unique, built-in equation editor.

But *Ventura*'s automated bag of tricks isn't limited to technical material: You can also push buttons that add bullets and *initial caps* (enlarged capital

Superbase's forms generator is well designed and powerful, allowing you to create calculated fields by pointing and clicking.

Hollywood couples easy organization of presentations with powerful chart enhancement tools.

letters) to a paragraph, automatically link captions to pictures, and turn on vertical justification to make professional-looking multicolumn text in newsletters, brochures, and reports.

Only *PageMaker* can produce materials that include scanned color photographs. But *Ventura Publisher 4.0,* due out by the time you read this, promises to provide improved color capabilities and support for color extension add-ons, as well as such new features as a spelling checker, search and replace, and undo/redo. Until then *Ventura 3.0*'s abundance of automated features make it the best package for most desktop publishing chores. —*Richard Jantz*

Corel Draw 2.0

Corel Draw has what many other drawing packages lack: superb control over type. In addition, version 2.01 provides drawing tools and special effects that match or exceed those of other top-rated drawing programs. Add a large clip-art library and first-rate image management, and you have a sizzling Best Buy.

Corel Draw incorporates some of the finest typographic features from the desktop publishing world. You get more than 150 scalable fonts, the ability to create your own typefaces and symbols, and interactive kerning (letter spacing).

As for drawing, *Corel 2.0* supports point-by-point Bezier curves for smoother, more precise output. New transformation tools catch up to its competitors', allowing you to create snappier sales and marketing publications. The Extrude command, for example, lets you twist 2-D shapes into 3-D objects that pop off the screen. The Blend command draws all the intermediate steps (including every shape and color) in the transition between two drawings—say of a monkey and a man. At last *Corel Draw* lets you add perspective to a drawing or mold text into any shape.

If you work with large libraries of image files, you'll appreciate *Corel*'s Mosaic utility. You can select a file by choosing it from a series of miniature images, create compressed libraries of files, and export or print a group of files at once.

Corel's encyclopedic clip-art library includes 750 images and 3300 symbols. And if you need more, the new CD ROM version of *Corel* offers 10,000 images, uncompressed for quick access, and 50 extra fonts. For designers who concentrate on eye-catching images, and business presentation types who need attention-grabbing text, *Corel* is a must. —*Deke McClelland*

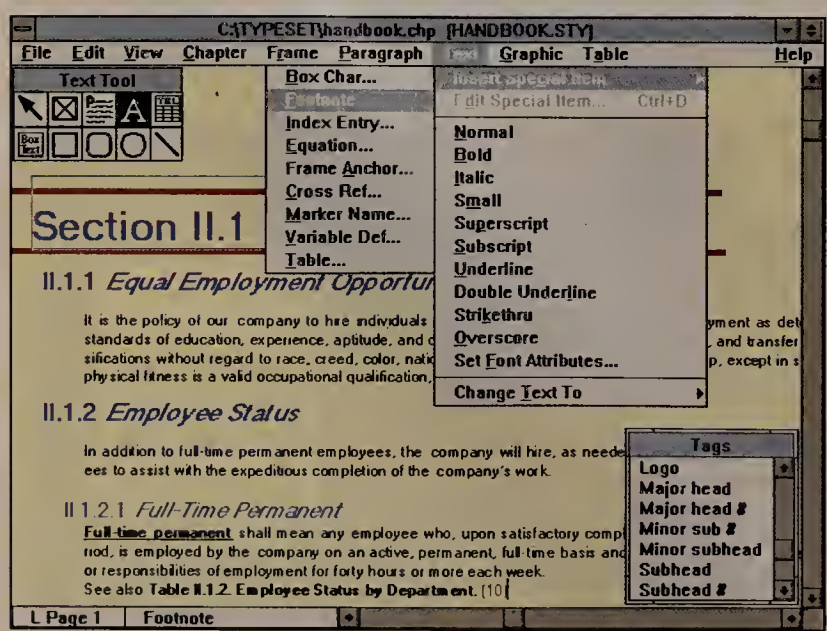
Crosstalk for Windows 1.2

The world of communications is still pretty arcane for most users. And while communications packages haven't quite achieved the ease-of-use standards of the rest of the *Windows* world, *Crosstalk for Windows* comes closest.

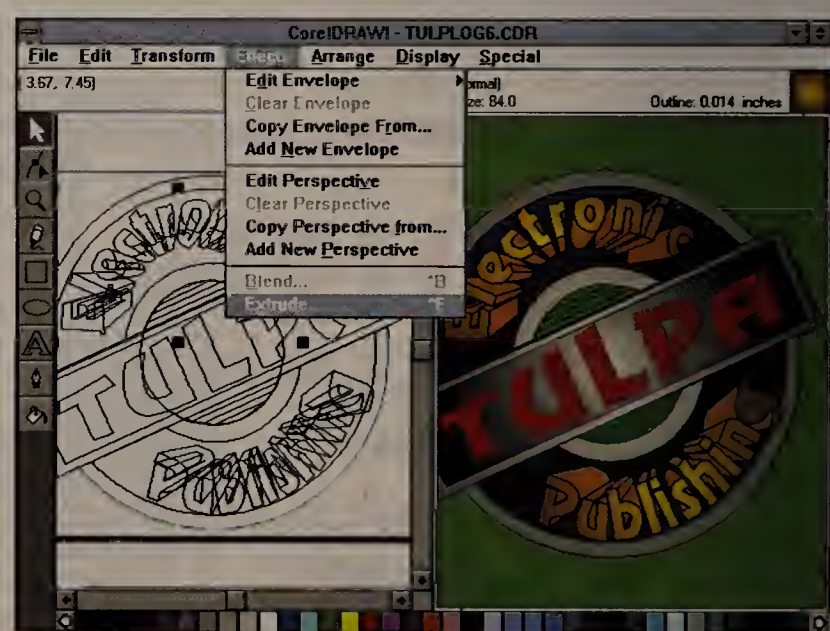
Crosstalk has an excellent installation routine and a tutorial that covers on-line basics. Even though it doesn't offer an icon-based interface like its *Windows* rivals *DynaComm* and *MicroPhone II,* its comparatively streamlined menus are easier to use. You can cut and paste freely, and file transfers work in the background while you work on something else.

Crosstalk for Windows includes the robust CASL language for creating scripts, or you can use the new learn mode to record scripts as you go. Automatic log-on scripts are provided for MCI, CompuServe, and Dow Jones News/Retrieval. You can also create a function key template of up to 60 keys that automatically execute scripts.

New to version 1.2 is asynchronous communications server support, a capability that allows you to share modems on a LAN. For DEC users, *Crosstalk for Windows* provides VT220 and VT320 emulation for access to DEC systems and applications. If you own an error-correcting modem, you can take advantage of YMODEM-G support to perform faster file transfers.

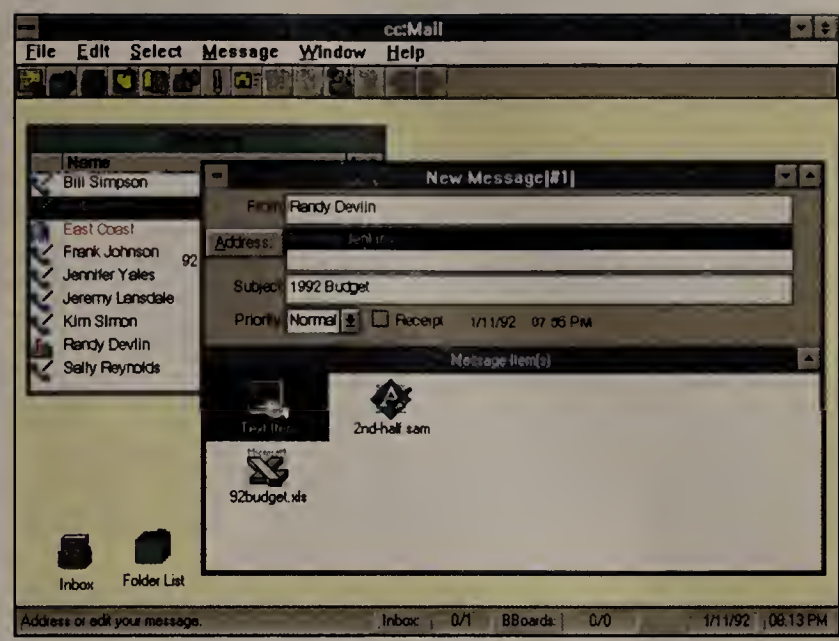


Ventura's wealth of automated features, such as footnotes and cross-references, gives it the edge in producing business documents.



Corel Draw 2.0 provides superb special effects, powerful drawing tools, fine control over text, and an abundance of fonts and clip art.

Crosstalk lets you click on icons to call your favorite on-line services, and you can easily edit the associated scripts.



In cc:Mail, you can double-click on an attached Excel or Ami Pro file, and that application will launch automatically.

It's too bad that *Crosstalk for Windows* doesn't follow *Crosstalk MK.4*'s footsteps by providing a dialing directory on a par with the top DOS-based programs. Although it's not as easy to use as some other software, such as the shareware package *Unicom, Crosstalk for Windows* is recommended because of its superb scripting capabilities and rich features set. —*Judy Heim*

cc:Mail for Windows 1.1

The DOS version of *cc:Mail* sets a high standard for E-mail. Its menuing system is so streamlined you can use it almost without thinking, and even novices need little training.

cc:Mail for Windows is also a sound product, although a bit more opaque due to a proliferation of icons and pulldown menus. It offers the advantage of opening multiple messages or folders at once and cutting and pasting between them.

Version 1.1 of *cc:Mail for Windows* adds SmartIcons, a customizable palette of iconized commands that can remain on screen. If your work habits change, simply change the command icons.

Because it's always a hassle to switch between applications, even in *Windows*, *cc:Mail 1.1* supports application launching. Just double-click on any file attached to a message and *cc:Mail* will load it into the relevant application. If you don't own the application, you can view the attachment anyway using *cc:Mail*'s new viewers for different file formats.

Lotus has made *cc:Mail* an E-mail linchpin in its *Windows* applications. If you work in Lotus products such as *1-2-3 for Windows, Ami Pro 2.0,* or *Freelance for Windows,* you'll automatically get a File menu option that allows you to send the file you're working on through *cc:Mail.*

cc:Mail's connectivity is superb; a host of third-party products extends its reach to fax machines and E-mail systems across the globe. An optional group scheduler and calendaring module is also available, making *cc:Mail* the most complete E-mail product on the market. —*Anita Amirrezvani*

Anita Amirrezvani, Judy Heim, Richard Jantz, and Richard Scoville are contributing editors and Eric Brown is senior reviews editor for PC World. *Paul Litwin is a medical statistician and a contributing editor for* Data Based Advisor. *Deke McClelland is the author of* Drawing on the PC *(Business One Irwin, Homewood, Illinois, 1990).*

Where To Buy

Ami Pro 2.0
Lotus Development Corp.
55 Cambridge Pkwy.
Cambridge, MA 02142
800/831-9679,
617/577-8500
LIST PRICE: $495
Reader service no. 601

Excel 3.0
Microsoft Corp.
One Microsoft Way
Redmond, WA 98052
800/426-9400,
206/635-7070
LIST PRICE: $495
Reader service no. 602

Superbase 4 1.3
Software Publishing Corp.
3165 Kifer Rd.
Santa Clara, CA 95056
800/336-8360 ext. 120,
408/988-7518
LIST PRICE: $695
Reader service no. 607

Hollywood 1.0
Claris Corp.
5201 Patrick Henry Dr.
Santa Clara, CA 95052
800/325-2747,
408/727-8227
LIST PRICE: $499
Reader service no. 606

Ventura Publisher 3.0, Windows Edition
Ventura Software Inc.
15175 Innovation Dr.
San Diego, CA 92128
800/822-8221
LIST PRICE: $795
Reader service no. 608

Corel Draw 2.0
Corel Systems Corp.
Corel Bldg.
1600 Carling Ave.
Ottawa, Ontario
Canada K1Z 8R7
613/728-8200
LIST PRICE: $695
Reader service no. 604

Crosstalk for Windows 1.2
Digital Communications Associates, Inc.
100 Alderman Dr.
Alpharetta, GA 30202
800/348-3221
LIST PRICE: $195
Reader service no. 605

cc:Mail for Windows 1.1
Lotus Development Corp.
2141 Landings Dr.
Mountain View, CA 94043
800/448-2500,
415/961-8800
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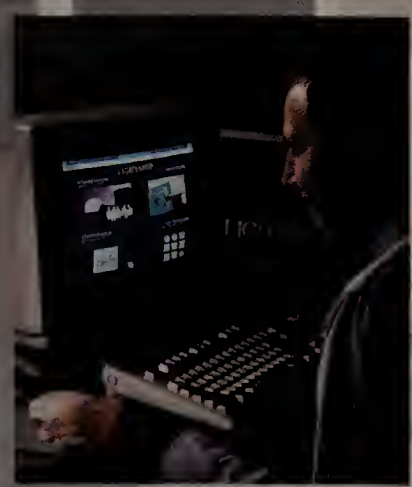

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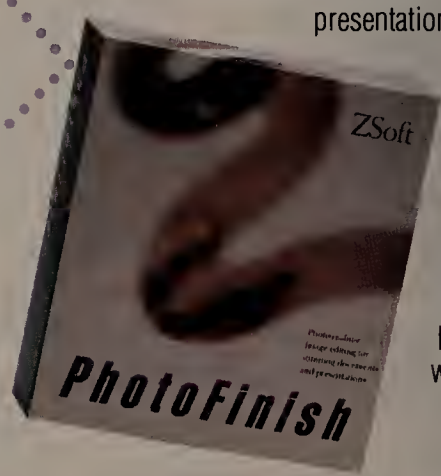

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New Applications on the Horizon

If you thought your suite of *Windows* applications was complete, think again. A rich assortment of new releases is coming down the pike, and they may well change your opinion (and ours) of what's best. Here's a list of major products that were unreleased as of our deadline.

Word Processing

• Word for Windows 2.0

It just missed this review, and it promises to pack a wallop. New features include a grammar checker, a drawing package, a charting program, a graphical equation editor, a multilingual dictionary, and improved mail merge and envelope printing. Watch out, *Ami Pro!* *Microsoft, One Microsoft Way, Redmond, WA 98052; 800/426-9400, 206/462-9673. List price: $495*

Reader service no. 623

• WordPerfect 5.1 for Windows

WordPerfect users now have even more reason to get graphical. *5.1* will simplify common tasks with customizable button bars, a *PageMaker*-like formatting ruler, a font viewer, a macro language, and more. *WordPerfect, 1555 N. Technology Way, Orem, UT 84057; 800/451-5151, 801/225-5000. List price: $495*

Reader service no. 624

Spreadsheets

• Quattro Pro for Windows

Expected in first quarter 1992, this spreadsheet aims to match or top *Excel 3.0*. It has customizable command buttons; pop-up menus; a convenient notebook metaphor for organizing multiple worksheets; SQL data base access; and the power to create custom applications without programming. *Borland Int'l, 1800 Green Hills Rd., Scotts Valley, CA 95067; 800/331-0877, 408/438-8400. List price: unavailable at press time*

Reader service no. 625

Presentation Graphics

• Freelance Graphics for Windows

Building on the *OS/2* version, this product is meant to guide users through every step of creating a presentation. It has an interactive tutorial, presentation templates that prompt you for data, and customizable command buttons. *Lotus Development, 55 Cambridge Pkwy., Cambridge, MA 02142; 800/343-5414, 617/577-8500. List price: $495*

Reader service no. 626

• Harvard Graphics for Windows

Modeled on its top-selling DOS counterpart, this package promises the same easy chart creation. Like *Persuasion* and *Freelance Graphics for Windows*, the program lets you globally edit presentations. Branching slide shows let you tailor PC-based presentations to your audience. *Software Publishing, 3165 Kifer Rd., Santa Clara, CA 95051; 408/986-8000. List price: $595*

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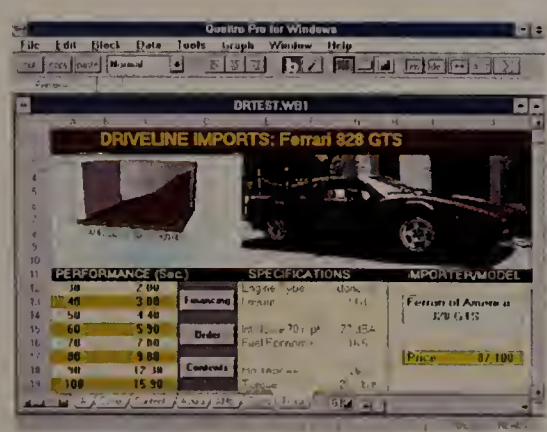

The forthcoming Quattro Pro for Windows will offer advanced drawing and graphing tools and use a notebook metaphor.

• Persuasion 2.1 for Windows

This upgrade offers better performance and tighter integration with other *Windows* applications—and still lets you manage presentations easily. You can even create run-time shows that work on both Macs and PCs. *Aldus, 411 First Ave., Seattle, WA 98104-2871; 206/622-5500, 206/628-2320. List price: $495*

Reader service no. 628

Desktop Publishing

• QuarkXPress 3.0 for Windows

Aimed at publishing professionals, this legendary Mac package is due in the first half of 1992. This precision product has impressive range—for example, it handles type sizes from 2 to 720 points—and features movable palettes for editing type, pictures, color, and style sheets. *Quark, 300 S. Jackson #100, Denver, CO 80209; 800/356-9363, 303/934-2211. List price: $895*

Reader service no. 629

• Ventura Publisher 4.0, Windows Edition

Version 3.0 earns a Best Buy (see review in this issue), but 4.0 won't stop there—it's aiming for the top slot in color publishing—including color separation. New features include a spelling checker, search and replace, undo/redo, and OLE capabilities. *Ventura Software, 15175 Innovation Dr., San Diego, CA 92128; 800/822-8221. List price: $79*

Reader service no. 630

Drawing

• Aldus FreeHand 3.0 for Windows

Like its Macintosh cousin, *FreeHand* allows you to create a custom work environment. It gives you floating command palettes for tools, styles, and colors, and the ability to organize designs into multiple layers that can be separately edited and printed. A full-screen color preview mode makes drawing and editing easier. *Aldus, 411 First Ave., Seattle, WA 98104-2871; 206/622-5500, 206/628-2320. List price: $595*

Reader service no. 631

• Harvard Draw for Windows

Designed for business users who aren't necessarily artists, *Harvard Draw for Windows* produces numerous palettes containing complementary color schemes and fills, a helpful information bar that describes icons and menu commands, and context-sensitive on-line help. *Software Publishing, 1901 Landings Dr., Mountain View, CA 94039; 408/986-8000. List price: $595*

Reader service no. 632

Communications

• DynaComm 3.1, Terminal Plus

Slated for release in January, *DynaComm* has a completely redesigned interface, lets users share a modem on a LAN, and supports multiple networked modems via an upgrade package from Cross Communications. A pared-down version of *DynaComm, Terminal Plus,* features the same revamped interface. *FutureSoft, 1001 S. Dairy Ashford #101, Houston, TX 77077; 713/496-9400. List price: DynaComm $249.95, Terminal Plus $99.95*

Reader service no. 633

• MicroCourier, Carbon Copy for Windows

MicroCourier is a complete, inexpensive package that simplifies communications by means of a utility that prompts novices through an entire session. If you also need remote capabilities, *Carbon Copy for Windows* enables you to access distant PCs and perform file transfers. *Microcom, 500 River Ridge Dr., Norwood, MA 02062; 800/822-8224, 617/551-1000. List price: MicroCourier $99, Carbon Copy for Windows $199*

Reader service no. 634

E-Mail

• BeyondMail for Windows

DOS *BeyondMail*'s claim to fame is its messaging language, which lets users create applications to route information, archive correspondence, even consolidate worksheets. At press time, the *Windows* version's features were unannounced. *Beyond Inc., 38 Sidney St., Cambridge, MA 02139; 800/845-8511. List price: unavailable at press time*

Reader service no. 635

• Da Vinci eMail for Windows 2.0

Version 2.0 improves on an already strong product by providing message folders and more flexible sorting functions. Other new features include file viewers and the power to launch applications by clicking on file attachments. *Da Vinci Systems, P.O. Box 17449, Raleigh, NC 27619; 800/328-4624, 919/881-4320. List price: unavailable at press time*

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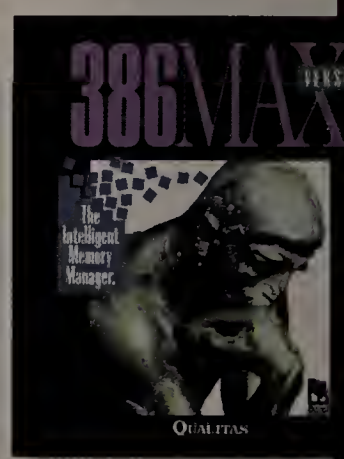

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© 1991, 1992 Qualitas. Qualitas, 7101 Wisconsin Avenue, Suite 1386, Bethesda, MD 20814. *All company and product names are trademarks or registered trademarks of their respective owners.* **System Requirements: Any 386 or 486 PC or PS/2, min. 256K of extended memory, DOS 3.0 or higher, and hard disk drive.** **386MAX supports 286 systems with Shadow RAM. Feature availability and memory recovery may vary. **Offer valid in North America only.*

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Reader service no. 609

Adobe Type Manager for Windows 1.0

Printers aren't limited to built-in fonts anymore. *Adobe Type Manager* expands your printer's capabilities with 13 high-quality typefaces. Output quality is excellent, especially on laser and ink jet printers. Version 2.0, due out by the time you read this, promises improved performance. And if you want even more variety, the $198 *Plus Pack* provides 22 additional scalable fonts. *Adobe Systems, 1585 Charleston Rd., Mountain View, CA 94039; 800/344-8335. List price: $99. —George Campbell*

Reader service no. 610

ProKey for Windows

Tired of navigating through *Windows? ProKey for Windows* lets you automate common tasks using macros. You can attach frequently used macros to buttons and put them in a pop-up window. Unlike many *Windows 3.0* macro processors, *ProKey* lets you edit macros, and you can catch errors in a window that executes macros step by step. *Rosesoft, 13256 Northup Way #23, Bellevue, WA 98005; 206/562-0225. List price: $99. —Scott Dunn and Jesse Berst*

Reader service no. 611

After Dark

This screen saver is useful *and* fun. You get 35 animated displays including a nighttime cityscape, a fish-filled aquarium, and flying toasters, complete with sound effects. You can insert your own graphics or messages and set passwords so no one else gets beyond your display. *Berkeley Systems, 1700 Shattuck Ave., Berkeley, CA 94709; 510/ 540-5535. List price: $49.95. —Steve Bass*

Reader service no. 612

Desktop Set 3.0

Desktop Set is like a *SideKick* for *Windows*—it has a capable calculator, phone book, and calendar. You can enter appointments in a daily schedule, set alarms and reminders, and enter notes and addresses in the phone book. If you bill by the hour, you'll welcome the call logging feature with its date stamp and timer. *Okna, P.O. Box 522, Lyndhurst, NJ 07071; 201/460-0677. List price: $149. —Patrick Marshall*

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After Dark lets you save your screen from burn-in with one of 35 animated displays.

Central Point Backup 7.1

It's two, two, two programs in one, with *Windows* and DOS versions in the same box. *Central Point Backup* performs full, partial, and incremental backups and restores, and it can handle multiple drives in a single session. Unlike most *Windows* backup programs, it supports prescheduled background backups to tape. Handy utilities are also provided for file compression and virus protection. *Central Point Software, 15220 N.W. Greenbrier Pkwy. #200, Beaverton, OR 97006; 503/690-8090. List price: $129. —Rex Farrance*

Reader service no. 614

Visual BASIC

This compiler is a boon to part-time *Windows* developers. Unlike heavy-duty tools such as *Turbo Pascal for Windows, Visual BASIC* is designed for programming visually. You put icons, buttons, and graphics in a window, then write BASIC code in an adjoining window to determine what happens when someone clicks on a button or enters data. The code is compiled into EXE files that you can run inside *Windows. Microsoft, One Microsoft Way, Redmond, WA 98052; 800/ 227-4679. List price: $199. —Lincoln Spector*

Reader service no. 613

Steve Bass, Jesse Berst, George Campbell, and John Walkenbach are contributing editors for PC World; *Lincoln Spector is an associate editor and Rex Farrance an assistant editor. Patrick Marshall is a freelance writer in Silver Spring, Maryland, who specializes in personal information managers.*

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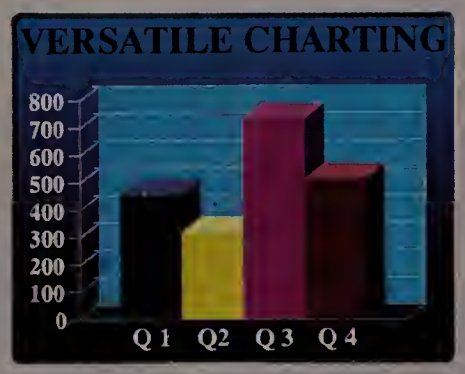

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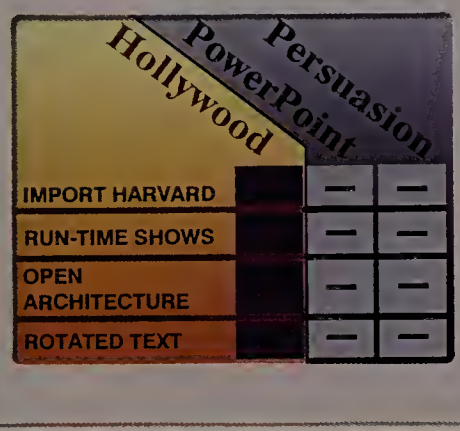

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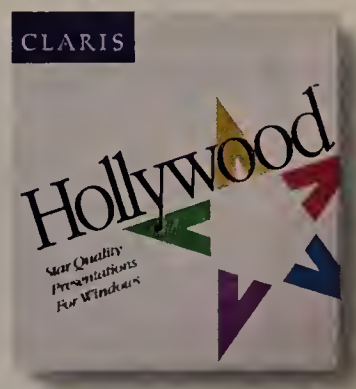

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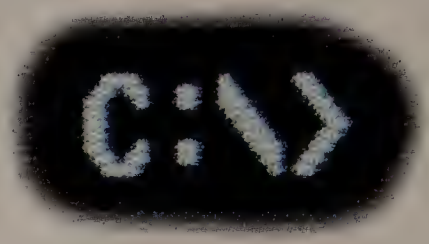

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How To: Link Your Windows Applications

With *Windows* software, togetherness is best. Here's how to swap data automatically between *Windows* applications and streamline common business chores.

By John Walkenbach

If you do all your work in *Windows* applications, you know the advantages of an integrated environment. *Windows* avoids the tiresome process of frequently exiting to DOS; opening, closing, and reopening applications; and worst of all, keying in data from other software.

But you can achieve even tighter integration—to the point that you can automate tasks involving several applications. The key is *Windows'* Dynamic Data Exchange (DDE), a method of passing data between applications.

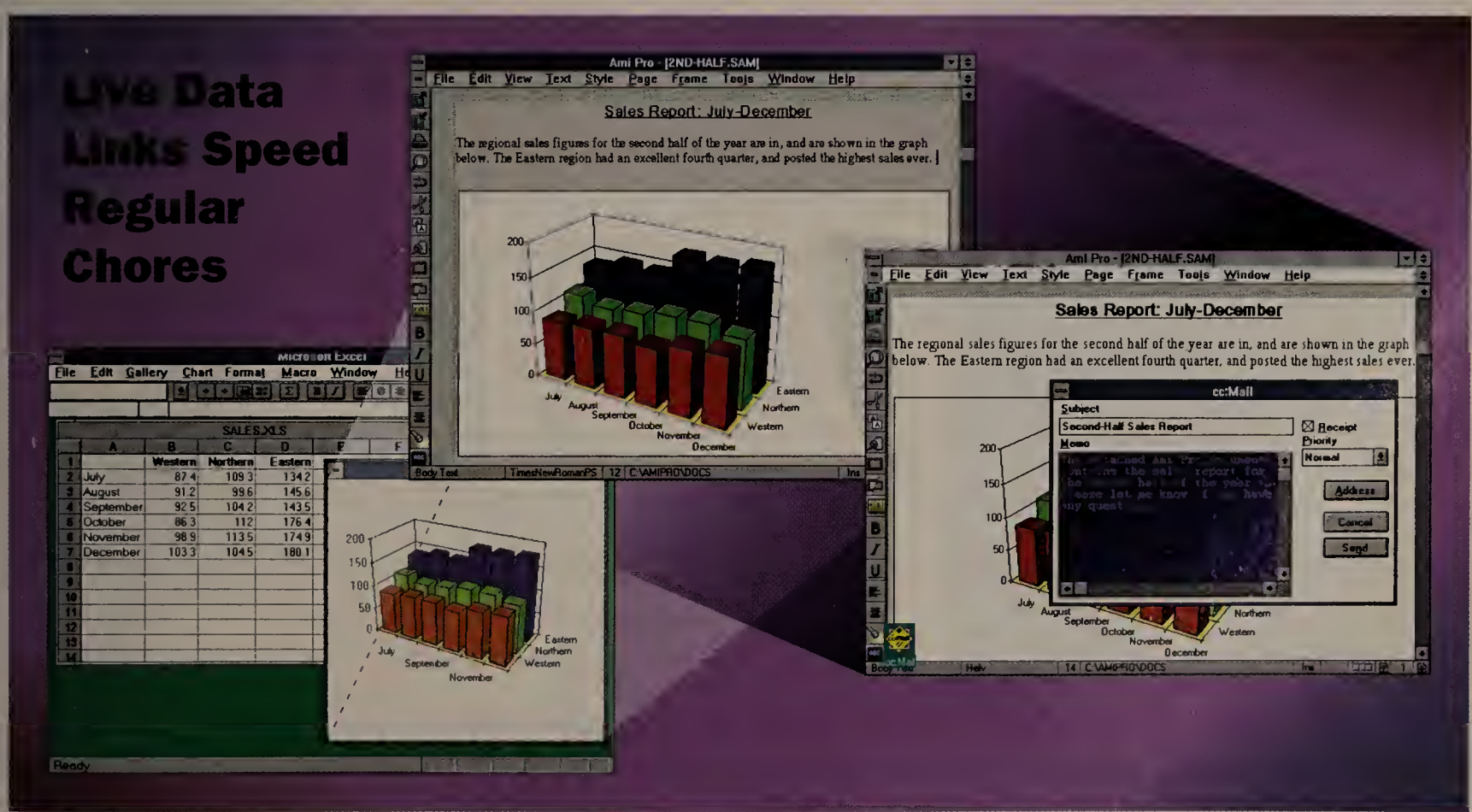
Suppose you need to prepare a monthly report in *Ami Pro* that summarizes regional sales figures and includes a fancy graph created in *Excel.* Instead of starting from scratch each month, you can prepare the report and graph just once, set up DDE links between the documents, and then simply update the numbers in your spreadsheet. The changes flow into the graph and then straight into your report.

This article shows you how to set up a DDE link between *Excel 3.0* and *Ami Pro 2.0. Ami Pro* doesn't do 3-D graphs, so you use *Excel* to create a chart and link it to *Ami Pro.* Finally, you send the completed report to co-workers via *cc:Mail for Windows.*

Creating the Chart in Excel

The *Excel* sales figures and chart are shown in **SCREEN 1**. We'll assume that *Excel* and *Ami Pro* are running and that you have a mouse installed.

1. In *Excel,* type the sales figures in **SCREEN 1**, then select *File Save as* and name the file **SALES.XLS**.



It's simple to link data between Windows applications. Select the Excel chart and copy it to the Clipboard using Edit Copy, then switch to Ami Pro and use Edit Paste link to insert the chart into the sales report. Now you can change a number in Excel, and the Ami Pro chart updates automatically. Finally, use File Send mail to launch cc:Mail from within Ami Pro and send the sales report to co-workers.

2. Highlight cells *A1:D7*. Choose *File New*, then click on *Chart* (or use the <F11> shortcut key). The chart will appear in a new window.
3. Select *Gallery 3-D column* from the menu and click *OK*.
4. Maximize the chart window, then select the *File Save as* command and save the chart as **SALESCHT.XLC**.
5. Select the chart with the *Chart Select chart* command, and select *Edit Copy* to copy it to the Clipboard.

Creating the Link to Ami Pro

Next, you'll link the chart to the *Ami Pro* report.

1. Activate *Ami Pro* and create the text shown in **SCREEN 2**, or substitute your own text.
2. *Ami Pro* requires graphics to be inserted in a frame, so use the frame SmartIcon to create a frame by dragging (or select *Frame Create frame*). You can adjust the size later.
3. Since you copied the *Excel* chart to the Clipboard, just double-click to select the new frame and choose *Edit Paste link* to insert the graph.
4. At this point you can adjust the frame and graph scaling using the *Frame* command on the *Ami Pro* menu.
5. Test the link by changing a number in the *Excel* worksheet. The change will appear in the *Excel* chart and in the linked chart in *Ami Pro*.

Sending the Report Through cc:Mail

The final task is sending the completed sales report to the regional managers via *cc:Mail for Windows*. *Ami Pro* has a handy command to simplify the process. From *Ami Pro*, select *File Send mail* (see **SCREEN 3**). This launches *cc:Mail* if it's not already running and attaches the current document to a message. You can type a cover sheet to accompany the document, specify the mail recipients, and send the message. When you finish, you'll be returned to *Ami Pro*.

Cautions and Caveats

You shouldn't have trouble setting up the link described here. But once you start experimenting more with DDE, you may find that it works better in theory than in practice. The links are relatively fragile: If you move a linked document to another directory or change its file name, you'll cut the link. You'll need to start over or edit the link using a Link Options command.

When you experiment with complex links between multiple applications, don't be surprised to see Unrecoverable Application Errors or other problems. *Windows 3.1* promises to standardize DDE, reducing errors. But if you to use DDE links with earlier versions, the best advice is to save your work frequently.

Contributing editor John Walkenbach is coauthor (with Phillip Robinson) of the PC World Complete 1-2-3 for Windows Handbook *(IDG Books, San Mateo, California, 1991).*

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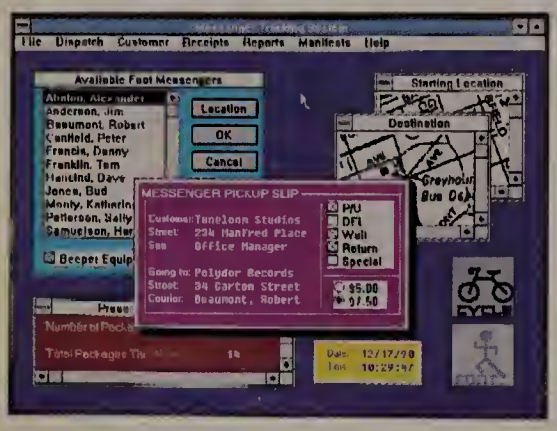

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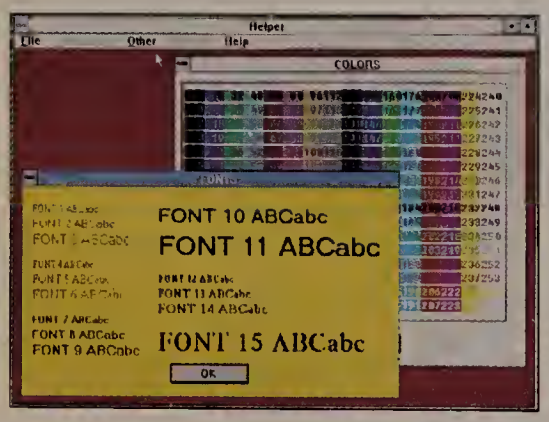

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SPREADSHEETS (A..Z)

Practical tips for building better worksheets

Richard Scoville

Now that the new WYSIWYG interfaces in *1-2-3 2.3* and *3.1* let you decorate your worksheets with fonts, boldface, boxes, lines, and shading, do you find yourself wasting time formatting all the section headings in your 23-page megasheet in Swiss 14 point Bold Italic? If so, remember that Lotus provides styles along with these new spreadsheet publishing capabilities to rescue you from font flipping. This month, we'll show you how to create styles and apply them to multiple worksheets.

A style is a collection of named WYSIWYG text format settings. You define a style by example: When one cell looks the way you want, you use it to define the style. You can then format matching cells and ranges by assigning them that style. If you later change the definition of the style, all the cells formatted with it will change accordingly.

To see how this is done, let's build the simple profit-and-loss statement shown in **SCREEN 1**. Start with a clean worksheet, and set the global format to (,2) by selecting */Worksheet Global Format* and pressing **<Comma>2<Enter>**. Then enter the labels shown in column A and in B2..C2, and type in the values in columns B and C. In B5 enter the formula **+B3-B4**, and copy it to C5: Select */Copy,* press **<Enter>**, move the cell pointer to C5, and press **<Enter>** again. Similarly, enter the formula for total expenses, **@SUM(B7..B15)**, in B16 and the profit formula **+B5-B16** in B18. Copy each formula into column C.

Now for the formatting. First make sure the WYSIWYG add-in is attached: Select */Add-In Attach* and *WYSIWYG.ADN*. If WYSIWYG is already attached, you'll get a message to that effect. Otherwise, select *No-Key*.

Notice the two different types of special formatting in this worksheet: the headings in A1, B2..C2, A5, A16, and A18; and the boxed totals in B5..C5, B16..C16, and B18..C18. Begin by formatting one cell in each group. (Pressing the colon will activate the WYSIWYG menus.) With the cell pointer on A1, select *:Format Font 2* and press **<Enter>**; the worksheet title changes to Helvetica 14-point text. To make it bold, select *:Format Bold Set* and press **<Enter>**. Then go to B5. Select *:Format Font 2* and press **<Enter>**, then select *:Format Lines Outline* and press **<Enter>**.

Now, because each format is used repeatedly, we'll define styles for them. Put the cell pointer on A1, select *:Named-Style Define 2*, and press **<Enter>** to designate A1 as the example cell for the style. Enter **HEAD** as the style name and **Helv 14pt Bold** as the description. Go to B5 and use the same procedure to define Style 3. Name it **TOTAL**, and enter the description **Outline Helv 14Pt**. (Note that Style 1 is the default style: Redefine it, and you change the appearance of all unformatted cells.)

Now we'll use the styles to format the remainder of the worksheet. Go to B2, select *:Named-Style 2*, paint the range

A1: {HEAD: SWISS14 Bold} [W20] 'Big Cheese Gift Shop

	A	B	C	D	E	F	G
1	Big Cheese Gift Shop						
2		Jan	Feb				
3	Sales	12,435.00	13,456.00				
4	Cost of goods	6,534.00	7,241.00				
5	TOTAL INCOME	5,901.00	6,215.00				
6							
7	Advertising	320.00	450.00				
8	Bank charge	18.00	16.00				
9	Depreciation	212.00	212.00				
10	Dues & Pubs.	46.00	32.00				
11	Insurance	125.00	125.00				
12	Legal & Prof.	209.00	622.00				
13	Supplies	68.00	141.00				
14	Taxes	50.00	50.00				
15	Travel	77.00	390.00				
16	TOTAL EXPENSES	1,125.00	2,038.00				
17							
18	PROFIT (LOSS)	4,776.00	4,177.00				
19							

CHEESE.WK1

SCREEN 1: 1-2-3 styles speed up text formatting. Here we formatted cell A1 with :Format Font and :Format Bold, defined a style based on that cell, and used that style to format the other totals.

B2..C2, and press <**Enter**>. Repeat the process on cells A5, A16, and A18. Then go to B5, and use the same procedure to assign Style 3 to B5..C5, B16..C16, and B18..C18. Pretty neat, eh?

To format your next worksheet quickly, you can transfer the defined styles. First save this worksheet: Select */File Save,* enter a file name not already in your default directory, and press <**Enter**>. Then clear your worksheet with */Worksheet Erase Yes*. To use the styles in your new worksheet, select *:Special Import Named-Styles,* and select the FMT file for the file you just saved. Verify that your formatting styles are available by selecting *:Named-Styles* and examining the menu.

Questionable Spreadsheets Department

Q. *I read your October column with some interest. I found the macro more complicated than random sampling requires. Suppose you need to sample 10 numbers between 1 and 100. I enter 100 numbers, shuffle them with /Data Sort, then cull the first 10 numbers from the sorted list.*

Here's how it might work: Start with a blank worksheet. Create a list of 100 integers: Select /Data Fill, *enter* **B1..B100** *as the range to fill, then enter* **1** *for the start value,* **1** *for the step value, and* **100** *as the stop value. Now, give each integer a random index value: Go to A1 and enter* **@RAND**. *Then copy the formula for each number in column B:. Select* /Copy, *press* <**Enter**>, *then enter* **A2..A100** *as the range to copy to.*

Next, with the cell pointer still in A1, sort the numbers using the random values as the key: Select /Data Sort Data-Range, *paint the range A1..B100, and press* <**Enter**>. *Select* Primary-Key, *press* <**Enter**> *to designate column A as the key column, type* **A**, *press* <**Enter**>, *and select* Go.

At this point, you've randomly shuffled 100 numbers. To get your sample, take the top 10 values from column B.

Richard Allen
Palos Park, Illinois

Spreadsheet Toolbox

Monologue Worksheets Read Themselves Aloud

If you key lots of data into your worksheets, you probably proof your work by checking it against the original data sheets as a colleague reads back the numbers. It's a drag, but there's no alternative, right?

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```
     B        C
1
2   \V_CT_1
3   \V_CT_2
4   \V_LOWER        1
5   \V_UPPER       10
6   \V_N           10
7   \V_SORT? n
8
9   \R        {}
10            {paneloff}
11            {getnumber "Number of values? ",\V_N}
12            {if @iserr(\V_N)}{quit}
13            {getnumber "Lower limit? ",\V_LOWER}
14            {if @iserr(\V_LOWER)}{quit}
15            {getnumber "Upper limit? ",\V_UPPER}
16            {if @iserr(\V_UPPER)}{quit}
17            {getlabel "Sort the list? (Y/N) ",\V_SORT?}
18            {if \V_N>\V_UPPER-\V_LOWER+1}{beep}{quit}
19            /rncTARGET~{bs}.{d \V_N-1}~
20            {if @count(TARGET)>0}{beep}/rndTARGET~{quit}
21            /wic{r}~
22            /df{bs}.{d \V_UPPER-\V_LOWER}~
23            \V_LOWER~1~\V_UPPER~
24            {r}@rand~/c~.{l}{end}{d}{r}~
25            /dsrd.{end}{down}{l}~p~a~g
26            {l}/c{d \V_N-1}~TARGET~
27            /wdc{r}~
28            {if @upper(\V_SORT?)="Y"}/dsrdTARGET~pTARGET~a~g
29            /rndTARGET~
30            {indicate}
```

FIGURE 1: This <Alt>-R macro quickly produces a list of unique random numbers.

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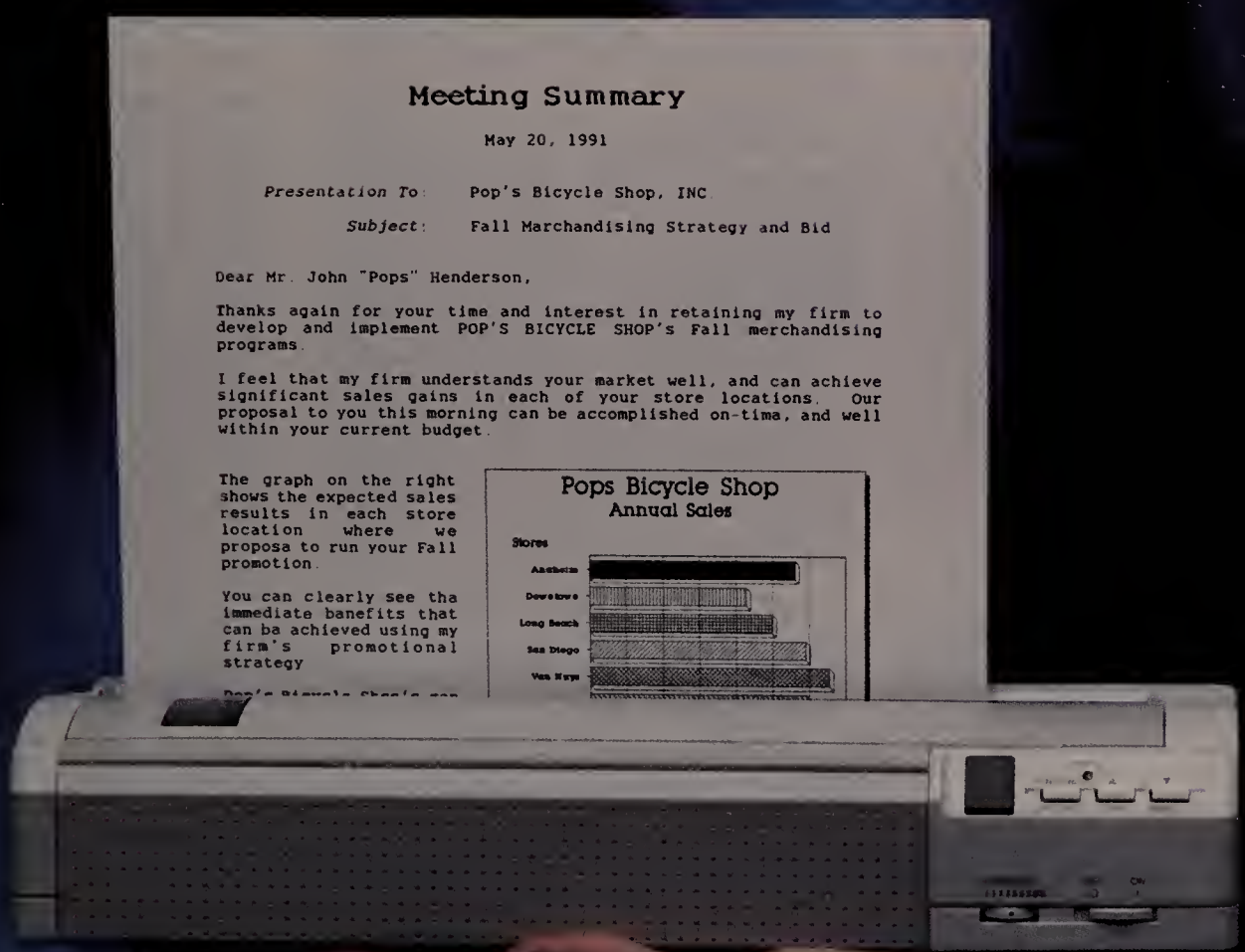

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CITIZEN

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Excel Shortcut

Watch the Bottom Line

Ralph Soucie

Neatness counts in spreadsheet work. Here's a macro that formats neatly underlined column totals in a jiffy.

First, enter the following formulas in a macro sheet (leave a blank cell at the top):

=BORDER(0,0,0,1,6,,,,,0,0)
=ROW.HEIGHT(18)
=RETURN()

In the cell above the BORDER function, enter a name for the macro. Leaving the cursor on that cell, select *Formula Define name*, click the Command button at the bottom of the dialog box, enter a letter in the Key box (for this example, we'll use *T*), and click *OK*.

To test the macro, open a new worksheet and fill the range B3:E12 with numbers. Then select the range B13:E13 and press <Ctrl>-T. The macro draws a single border at the top of the range (underlining the columns), increases the row height (separating the totals from the columns), and draws a double border at the bottom (double-underlining the totals). Now just double-click the Autosum button in the toolbar to display the total.

A. Your method is slick, and far more efficient than the macro I suggested. Thanks.

For readers who want to incorporate this sampling method into October's macro example, **FIGURE 1** shows a revised version that uses Mr. Allen's method. See the October column for expanded explanation. One obvious caution: The sheets in which you use the macro should not already use the range name TARGET or those shown in column B.

Send your spreadsheet questions to Richard Scoville, CompuServe 72341,2727; MCI Mail 357-4517; 415/442-1891 (fax); or mail them to Spreadsheets (A..Z), PC World, *501 Second St. #600, San Francisco, CA 94107.* PC World *will pay $50 for published questions. Sorry, we cannot acknowledge submitted materials.*

Richard Scoville and Ralph Soucie are contributing editors for PC World.

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WORD PROCESSING CLINIC

Tips for getting the most out of your word processor

George Campbell

Q. *I use* Word for Windows *along with* Adobe Type Manager, *and I really like the combination. However,* Word for Windows *lets me choose only even-numbered font sizes, with a limit of 48 points. Is there a way to use other font sizes? —Yvonne Markham, Bloomington, Illinois*

A. Sure there is. *Word for Windows* limits you to even-numbered fonts in its list boxes, but it's easy to cheat. Just click inside the font size box on the ribbon, change the current size to the one you want, then press **<Enter>**. You can choose any size between 4 and 127 points, in half-point increments. The Format Character dialog box works the same way.

Don't try this trick on fixed-sized internal printer fonts, such as the Hewlett-Packard LaserJet's Line Printer font. *Winword* and *ATM* will let you set a new size, and deceive you by displaying it. When you print, though, the font appears in its default size.

Q. *I'm using WordPerfect 5.1 to create an employee handbook for my firm. We have a Hewlett-Packard LaserJet IIId printer, which can print on both sides of the page, but I need to shift the margins to allow for hole punching. How do I do this? —Elizabeth Esposito, San Bernardino, California*

A. *WordPerfect*'s Print Menu lets you print pages that will be bound. To set this up, press **<Shift>-<F7>**, and press **B** to alter the binding offset for your document. Enter a figure in inches, such as .5, to offset the left and right margins, then press **<F7>** twice to return to the document.

There's a trick to this, though: When you set a binding offset in *WordPerfect*, it simply shifts the text—to the right on odd-numbered pages and to the left on even-numbered pages. This alters the opposite margin as well, making your layout inconsistent. To make sure your left and right margins are set at the proper width, press **<Shift>-<F8>LM**, then enter new figures for the left and right margins, adding half the amount of the binding offset to each. In other words, if your basic margins are 1 inch, and your binding off is ½ inch, reset your left and right basic margins 1 ¼ inches. Then press **<F7>** to return to the editing screen.

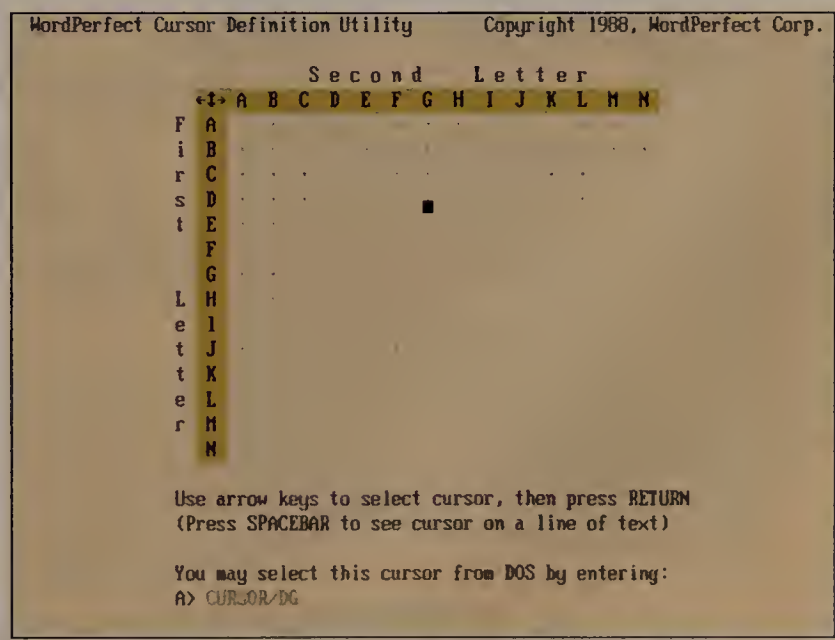
Before printing your document, check out the layout on *WordPerfect*'s print preview screen. Just press **<Shift>-<F7>V4** to preview facing pages, and you'll be able to see a clear picture of your layout.

Q. *I'm using* WordPerfect 5.1 *on a laptop, and hate the tiny, almost invisible cursor. Is there any way to alter* WordPerfect's *basic cursor? —Steven Jacobs, Milwaukee, Wisconsin*

A. Lucky you! *WordPerfect 5.1 includes* a utility that can set the cursor to almost any shape you like. The utility, called CURSOR.COM, is normally installed in your *WordPerfect* directory. If it's not there, use the installation program on your original disks to install it.

To alter your cursor, exit *WordPerfect*, and enter the command **CURSOR** in your main *WordPerfect* directory. You'll see a grid on the screen. Use the cursor keys to move around the grid, displaying all possible cursor shapes. When you see one you like, press the space bar to see how it looks in a line of text, then press the space bar again to return to the grid.

The bottom line on the screen displays the command needed to set this cursor style. Make a note of the command, which will look like CURSOR/*xx* (where *xx* are the letters describing the grid coordinates). Then press **<Enter>**



Attention laptop users: Need a cursor that's easy to see? WordPerfect 5.1's CURSOR.COM utility lets you select a larger cursor shape or size.

ANTHONY RUSSO

to exit the program. You'll see your new cursor on the screen, even at the DOS command line.

To make sure your cursor stays the way you like it, start *WordPerfect* from a batch file, such as:

CD\WORDPERFECT
CURSOR/*xx*
WP

This retains the cursor you selected whenever you run *WordPerfect* or return to DOS.

Q. *I'm often away from my desk. How can I keep my* WordPerfect 5.1 *documents confidential? —Louis Franklin, Phoenix, Arizona*

A. *WordPerfect 5.1* offers good password protection. To protect a document, load it into *WordPerfect,* then press **<Ctrl>-<F5>PA**. Type your password, press **<Enter>**, and then type it again. From then on, you must enter the password to view the document.

To protect a file from being accidentally deleted, use the DOS ATTRIB +R command. Exit *WordPerfect,* go to the file's directory, and enter the DOS command **ATTRIB +R** *filename.ext,* substituting the file name where indicated. *WordPerfect* can still read the file, but you can save changes to the file only by giving it a different name. If you ever want to reverse this protection, use the command **ATTRIB-R** *filename.ext.*

To ensure even tighter security, it's best to save your documents onto floppy disks that are stored in a secure area.

Q. *Is there a way to create a special dictionary for* Word 5.5 *that watches for overused and misused words and phrases?*

David S. Gunzel
Fort Worth, TX

A. While there's no way to do this inside *Word 5.5,* there's still an answer. Grammar checkers, such as *Grammatik IV,* allow you to create your own usage rules. Many commonly misused words and phrases are already built into these programs, but you can add your own.

Best of all, *Grammatik IV* and other grammar checkers work directly with most popular word processor files, eliminating the need to convert files to ASCII format. If you're looking for a built-in product, *Word for Windows 2.0* includes a customizable style and grammar checker.

Send your word processing questions to George Campbell, CompuServe 71571,222; MCI Mail GCAMPBELL; 415/442-1891 (fax); or mail them to Word Processing Clinic, PC World, *501 Second St., San Francisco, CA 94107.* PC World *pays $50 for published questions. Sorry, we cannot acknowledge submitted materials.*

George Campbell is a contributing editor for PC World.

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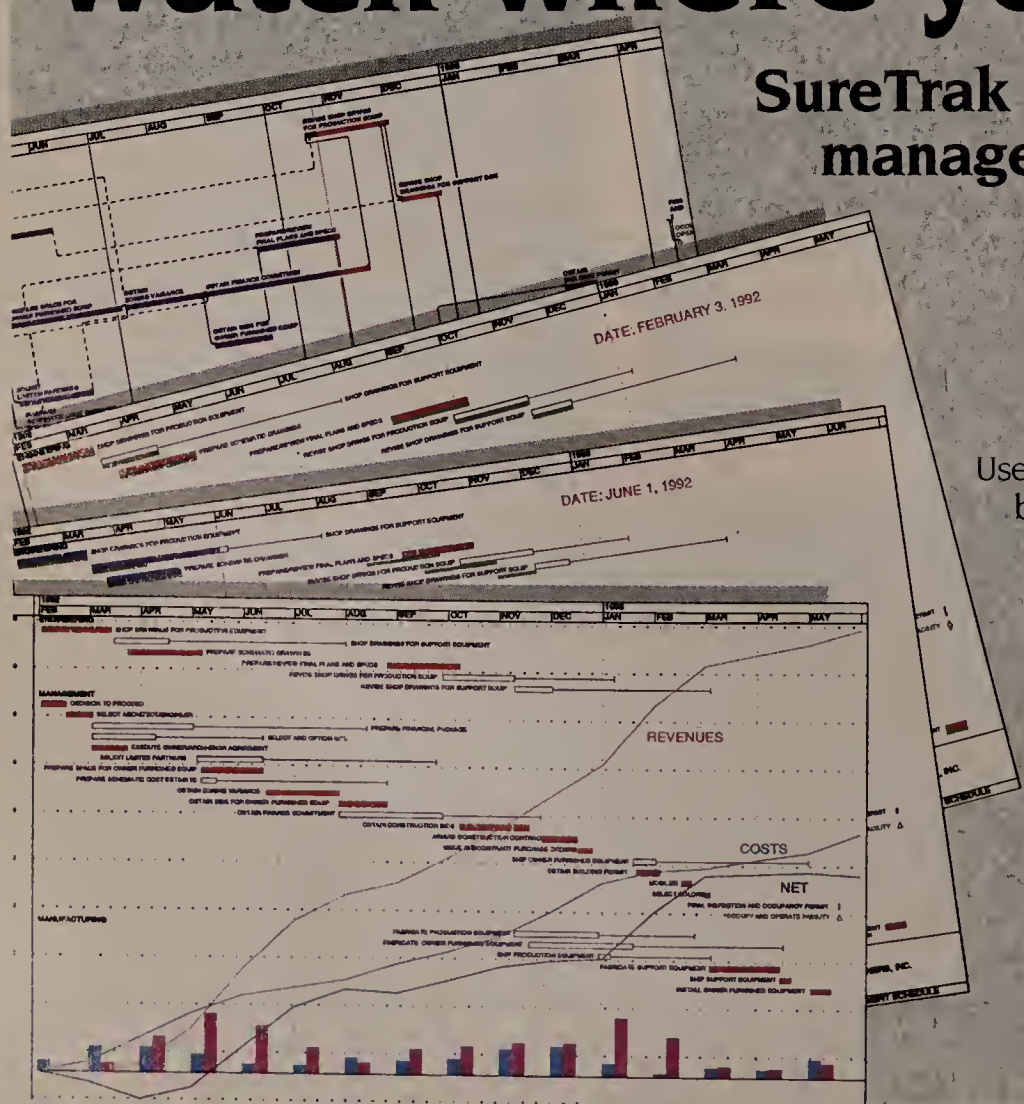

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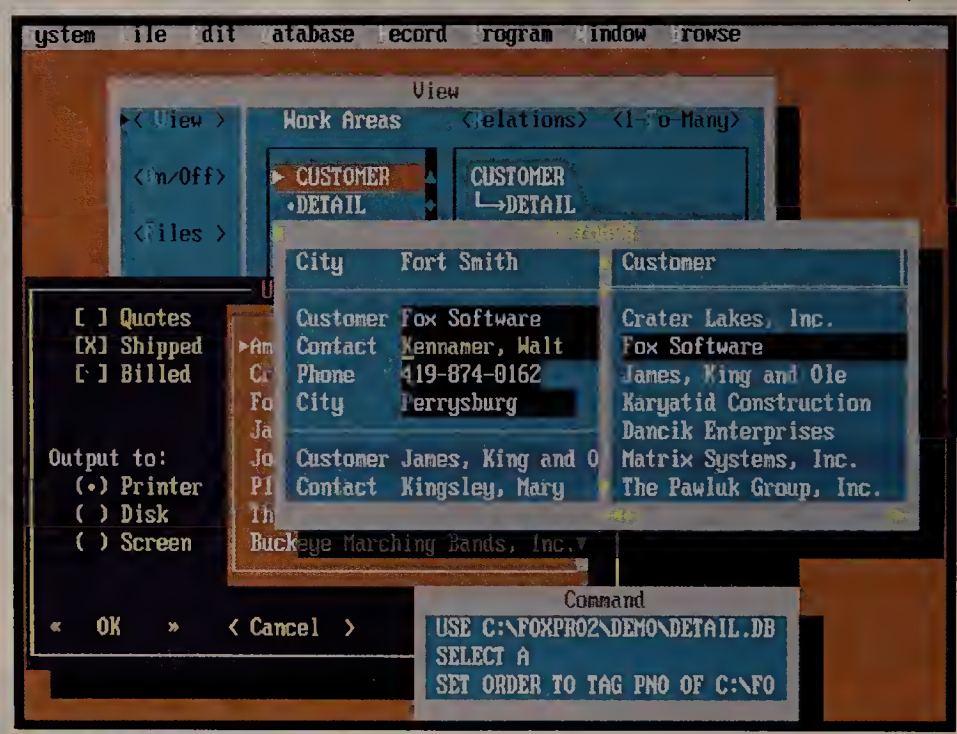

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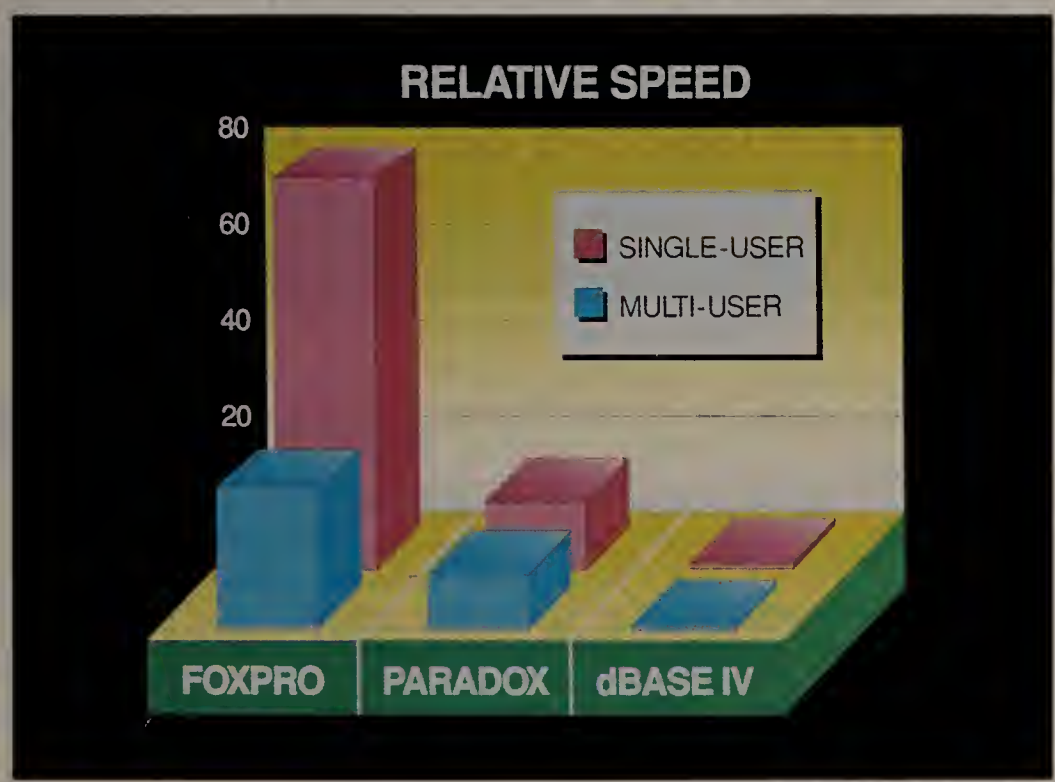

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DATA BASICS

Tips and techniques for managing your data

Steve Cummings

Q. *We want to create a* dBASE IV *master inventory list by combining existing files from three separate departments. The trouble is, each department developed its own data base independently. Any suggestions?*

Bill Borger
Deerfield, Wisconsin

A. Your first step is to create a master data file for the combined records. In designing the structure, consider which fields you'll need out of all three files, and pick the most reasonable name and length for each of them. Don't worry if the field names and lengths don't match those in your original files. A warning about field length: If one file's Descrip field is 35 characters long and another's Descpt is 25, use 35 characters in the final structure, or you will lose data.

The easiest way to copy data into the master file is through the query screen. From the Control Center, open the new master file by highlighting it in the Data panel, pressing <**Enter**>, and selecting *Use file.* Move to the Queries panel, and select *Create.*

Once you're in the query screen, select *Update Specify update operation Append records Proceed. dBASE* will display the notation 'Target' above the file's name. Select *Layout Add file to query,* and then choose one of the original files; its file skeleton will appear below the master file's.

Now it's time to let *dBASE* know which field in the old file corresponds to which field in the new one by typing identical labels in each—it doesn't matter what label you choose, so long as you use the same one. For instance, if the price is in the field ListPrice in the old file and Price in the new one, type in the word **Price** under 'Price' in the target file and under 'ListPrice' in the source. Once you've labeled all the fields in the master file and their corresponding fields in the source, select *Update/Perform the Update.* To view the master file and verify the transfer, press <**F2**>.

You can go through this process with only one source file at a time. And you will have to repeat these steps with each of the other original files.

Q. *I've been typing lengthy comments into a NOTE column in my* R:Base *data base. I'm now planning to build a form so that I can enter information into several related tables at once. How should I set up the form so that I can type in notes as long as I like?*

Lona Simpson
Reno, Nevada

A. It's easy to put a scrolling, multiline note field into a form. (In *R:Base,* the fields in a data base table are called "columns;" only the typing areas in a data entry form are called "fields".) Such a field acts as a window on your note, allowing you to scroll through.

To create such a field at the Form Building screen, press <**F6**> and enter

Edit Go to Exit

ORDER ENTRY FORM

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Store Name: World of Hi

Contact Name: Joe Joseph

Address: 15838 Sharonhill Drive

City: New York NY 10005

Phone Number: 555-1112

Notes: --This store often prefers overnight delivery; confirm with PAUL DODSON. VCR shipments

Order Number	Order Date	Description	Product Number	Units	Price	Total Sale
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H004	2/08/91	Receiver	103	10	195.00	$1,950.00
H006	2/08/91	Tape Player	102	55	210.00	11,550.00
H009	2/08/91	Television	107	12	395.00	$4,740.00
H011	2/08/91	VCR	108	9	275.00	$2,475.00
H017	2/08/91	Turntable	106	6	215.00	$1,290.00
H021	2/08/91	Speakers	101	85	250.00	21,250.00

Form: Orders Table: StoreList Field: Notes Page: 1

Putting a note field into an R:base form lets you store comments and other information that would not otherwise fit into your data structure.

ANTHONY RUSSO

Reader Tips

Changing Paradox's Default Directory

If you want to keep your Paradox data tables in a separate directory from your program files, you should make the data directory Paradox's default. That way, every time you load Paradox, your data files will be close at hand.

To change Paradox's default directory, start at the DOS prompt in the directory containing Paradox's program files (probably C:\PDOX). Enter the command PARADOX CUSTOM, which loads Paradox along with a PAL script that lets you set a great many defaults. From the menu, select *Defaults SetDirectory* and type in the name of your data directory. Press <Enter> and select *Return DO-IT* to save the change, then *HardDisk* or *Network*. This will bring you back to the DOS prompt. Now when you start Paradox, the program will always look first in the directory that your tables are in.

Willa Johnson
Corpus Christi, Texas

the name of your NOTE column—you can type it, or press **<Enter>** and select the column name from a list. You don't have to define an expression or customize field settings. Move the cursor to the top left corner of where you want the new field to be and press **S**, then to the desired top right corner and press **W** (for "word wrap"), then to the bottom right corner and press **E**. Your field must be rectangular—when you press **E**, the cursor must be directly below where you pressed **W**. Select *Exit* to save.

By the way, you can use a similar method to print notes in your reports. When defining the corresponding field, press **S** at the top left corner and **W** at the top right. This time, press **<Esc>** to tell *R:Base* to print as many lines as necessary for the entire field contents.

We'll pay $50 for every tip we use. Send your questions to Data Basics, PC World, *501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail 179-3813; 415/442-1891 fax. Sorry, we cannot acknowledge submitted materials.*

Steve Cummings is the author of Understanding Quicken *(Sybex, Alameda, California, 1990) and a* PC World *contributing editor.*

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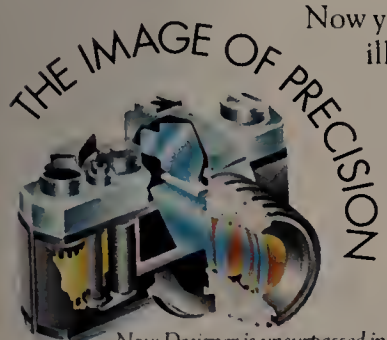

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Designer system requirements: 286 (386 recommended) IBM PC or compatible, or PS/2. 1 MB RAM (2 MB RAM recommended). 20 MB (or larger) hard disk. Windows 3.0. DOS 3.1 (or higher). Mouse or digitizing pad. Windows-compatible monitor.

Circle 183 on reader service card

PUBLISHING & PRESENTATIONS

Expert advice for creating high-impact documents and presentations

Richard Jantz

Marketing and sales materials promoting a company's products or services are among corporate America's most common publications. But with so many documents competing for attention, a marketing publication must stand out and make its point quickly.

This month's make-over is a one-page marketing quarterly published by Econometric Software of New York. The double-sided report's main purpose is to provide information about new company products and upgrades. Although the original design is well organized and uses spot color to grab attention, the publication lacks distinction, and the elements are crowded and uninviting. Also, article headings are overbearing and too similar in weight to tell which item is important or what the key message is.

Our first step was to redesign the document's *nameplate*, or banner, to strengthen the publication's identity. We replaced the blocky typeface used for the company name with a sleeker, more elegant style and printed it in reversed type (white letters on a black background). We shortened "Newsletter" to "News" to describe the document's purpose more accurately and used spot

Before

Econometric Software Summer, 1990

N · E · W · S · L · E · T · T · E · R

New Capabilities for LIMDEP 5.1

Nonparametric and GMM Estimation

LIMDEP, one of the world's most popular programs for estimating qualitative and limited dependent variable models, has added two major new capabilities.

Maximum score estimation of binomial response models is LIMDEP's entry into nonparametric modelling. LIMDEP is now the only major package which offers this capability. This estimator is based on a prediction criterion, rather than on a likelihood function which may not produce a particularly good fit.

The second new feature, GMM estimation, is becoming increasingly common in applied research. LIMDEP's function minimization program can be used to obtain solutions to the orthogonality conditions $\Sigma_i g(y_i, x_i, \beta)z_i = 0$. The "residual," g(.) may be defined implicitly. The equivalent problem solved with LIMDEP is to minimize with respect to β the quadratic form $g'Z(Z'\Omega Z)^{-1}Z'g$ where g is the vector of residuals and Z is the matrix of instruments. The covariance matrix $Z'\Omega Z$ is based on any of an identity matrix—White's heteroscedasticity corrected matrix or the Newey-West robust estimator for unspecified autocorrelation.

LIMDEP is now the only major package to include the maximum score estimator.

Econometric Software is planning several more enhancements later this year. These include nonlinear systems of equations, nonparametric regression models, and continuing development of the survival models. Users who purchase the program or update their current program after April 15, 1990 can request an update, at no charge, until December 31, 1990. ♦

386 Version

The new 386 version of LIMDEP, optimized for 386/387 systems with extended memory, is significantly faster than the real mode version, and handles far larger problems than even our mainframe version. Models can have up to 150 parameters, and the panel data estimator handles up to 2,000 groups. Internal data storage is at least 400,000 words. The 386 version requires at least 4 megabytes of memory and an 80387 math coprocessor. It is compatible with Quarterdeck and other extended memory managers. ♦

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New Capabilities 1
ET: The Econometrics Toolkit 1
386 Version 1
Reviews 2
Mainframe Capability for Your PC 2
Update Information 2

ET: The Econometrics Toolkit

Students on college campuses across the country are learning econometrics and statistical analysis with the help of ET—The Econometrics Toolkit.

ET is designed for students to use throughout a year-long course at the junior or senior undergraduate level, the MBA level, or the Ph.D. level. The program covers all the techniques in a standard econometrics course.

ET has impressive features, like a full-screen text editor, high resolution plotting, and a powerful matrix algebra package. In fact, many professionals are using ET for their research.

If you would like to "test drive" ET, we will send you a FREE demonstration copy. For more information, see the enclosed announcement. ♦

After

A much wider left margin (1½ inches instead of ½ inch) provides more white space and narrows each column width (from 14½ picas to 12). To ensure the text is still readable, we change the original 12-point Times Roman to 10-point ITC Garamond Light Condensed and increase leading from 12 to 13 points.

The heavy 18-point Helvetica Bold headings in the original become 36-point ITC Garamond Light Condensed, and their thick horizontal rules are changed to more subtle and space-saving dotted lines, printed with spot color.

To highlight the beginning of each article, we add a large capital letter (56-point Univers Ultra Condensed Bold) printed in spot color and set the first paragraph in 10-point ITC Garamond Ultra Condensed Bold Italic.

The pull quote, in 12-point Univers Ultra Condensed Bold reversed type, is prominently displayed in the left margin. Printing the box in spot color ensures that it gets noticed.

ANTHONY RUSSO

color and a different typeface to make the banner stand out. We also exaggerated the jagged line used in the original to make the nameplate more dynamic.

To give the document breathing room, we widened the left margin, narrowed the column widths, and eliminated the contents box—unnecessary for a single-sheet document. To improve text readability, we changed to a condensed typeface, reduced point size from 12 to 10, and added vertical rules.

Finally, instead of using spot color for headings—already prominent due to their size—we used it for other elements: the dotted lines that organize the information, the large initial capital letters that draw people into the news items, and the *pull quote* (short text excerpt) that highlights the publication's key message.

The original Econometric newsletter was far from a design disaster, but if you want striking marketing materials, every little improvement counts.

Send your publishing and presentations questions as well as business document and presentation make-over candidates to Richard Jantz, MCI Mail RJANTZ; 415/442-1891 (fax); or mail them to Publishing & Presentations, PC World, *501 Second St. #600, San Francisco, CA 94107.* PC World *pays $50 for published questions. Sorry, we cannot acknowledge submitted materials.*

Contributing Editor Richard Jantz is the author of Ventura Publisher 4.0 for Windows *(John Wiley & Sons, New York, 1991). Graphic designer Larry Westdal of Westdal Design Associates in Berkeley, California, created the make-over for this article.*

Econometric Software NEWS

Summer 1990

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If you would like to "test drive" ET, we will send you a FREE demonstration copy. For more information, see the enclosed announcement.

Reviews

"LIMDEP is unique in the class of regression models it can estimate. It is reasonably priced, well-supported and continuously growing." C. Hallahan, *The American Statistician*, 1989.

"The LIMDEP package provides the greatest range of analytical capabilities for the microcomputer that I have encountered." Jeffrey Osleeb, *The Professional Geographer*, February, 1987.

386 Version

The new 386 version of LIMDEP, optimized for 386/387 systems with extended memory, is significantly faster than the real mode version, and handles far larger problems than even our mainframe version. Models can have up to 150 parameters, and the panel data estimator handles up to 2,000 groups. Internal data storage is at least 400,000 words. The 386 version requires at least 4 megabytes of memory and an 80387 math coprocessor. It is compatible with Quarterdeck and other extended memory managers.

The redesigned nameplate identifies the company and publication more effectively. ITC Garamond Light Condensed Italic in 60-point reversed type replaces 40-point Avant Garde Bold Italic for the company name; 29-point Univers Extra Black Italic supplants 30-point Times Roman Bold for the word "News."

Most publishing programs provide drawing tools for creating a graphic device such as this jagged line. Alternatively, you could create this with an illustration program and import it into a page layout or word processing program.

The original doesn't make clear that the graph is used simply to break up the text. But by moving copy ("Reviews") from the second page to the first, the illustration's purpose is more obvious.

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COMMUNICATIONS Q&A

On-line resources for business and professional users

Judy Heim

Q. *I download stock quotes from Prodigy, but the software I use is a real hassle. Are there any utilities available that make the process less onerous?*
—L. Sullivan, Redwater, Texas

A. FlexSoft of Dublin, California, offers three programs for snatching stock quotes off Prodigy and massaging them. The *Prodigy Downloader* ($20) captures up to 1000 ticker prices in ASCII format. You start *Downloader* and feed it a list of ticker symbols. Then it goes to work loading Prodigy software, logging onto the service, and capturing the quotes. You can even set it to log on automatically at a specified time, even when you're not around.

The *Prodigy Metastock Loader* ($30) converts Prodigy's daily quotes into the format used by Equis International's *Metastock*, the leading PC stock analysis software. It will also convert daily quotes from CompuServe and historical ones from Dow Jones into *Metastock* format.

The *Technical Analysis Scanner* ($150, or $200 with built-in graphing) performs preanalysis screening of downloaded quotes. You plug in a list of ticker prices, and *TAS* scans them for indicators that you specify. Then you can shuttle the stocks that interest you into stock charting software like *Metastock* for further analysis.

These three products are shareware, which means you can try before you buy. They can be downloaded from FlexSoft's BBS at 510/829-2293. Look for PDL31.ZIP for *Prodigy Downloader*, PML420.ZIP for *Prodigy Metastock Loader*, and TAS407.EXE for *Technical Analysis Scanner*. FlexSoft can be reached at 7172 Regional St. #276, Dublin, CA 94568; 510/829-9733, 510/829-9733 fax. Reader service no. 620.

Q. *Can you explain what an on-line gateway is?—Len Duckwitz, Mechanicsburg, Pennsylvania*

A. In the on-line world, a thousand doors can lead to the same treasure. A gateway is any link between services that lets you access one on-line service from inside another one. Usually you go from a large service like CompuServe (CIS) to a smaller, more specialized data base or service, and you may not even notice you're using a gateway. For instance, if you dial CIS and access the Official Airline Guides (OAG), the only clue that you've passed through a gateway, which you have, is that OAG incurs an extra charge.

You can access services like Dow Jones/News Retrieval or OAG from different on-line services. The difference in cost between accessing a data base on one service and dialing into it from another can be dramatic. But most vendors won't tell you the cheapest way to tap into their data base, because they don't want to recommend one service over another.

To find the cheapest gateways, ask the vendor for the names of *all* the on-line services from which their data base can be tapped. Then call those services and ask for prices. Be sure to tally hourly connect charges, subscription fees, monthly minimums, and character and document fees.

Q. *Are there any newsletters or other publications that will teach me how to use on-line services to make investments?—Louis Sylvania, Crystal, West Virginia*

A. The American Association of Individual Investors publishes a bimonthly newsletter called *Computerized Investing*, which regularly reviews on-line services that may be of interest to amateur investors. In addition, the AAII sponsors PC investor clubs in 30 cities around the country, where you can mingle with other financial modemites. A subscription is $60 a year, or $30 with an AAII membership. Contact the AAII on their BBS at 312/280-8764, or at 625 N. Michigan Ave. #1900, Chicago, IL 60611; 312/280-0170, 312/280-1625 (fax). Reader service no. 621.

Send your communications questions to Judy Heim, CompuServe 71570, 3712; GEnie JUDY.HEIM; MCI Mail 312-7737; Internet 3127737@MCI-MAIL.COM; 415/442-1891 (fax); or mail them to Communications Q&A, PC World, *501 Second St. #600, San Francisco, CA 94107.* PC World *pays $50 for published questions. Sorry, we cannot acknowledge submitted materials.*

Judy Heim is a contributing editor for PC World.

ANTHONY RUSSO

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InfoWorld PostScript Printer comparison, June 10, 1991.

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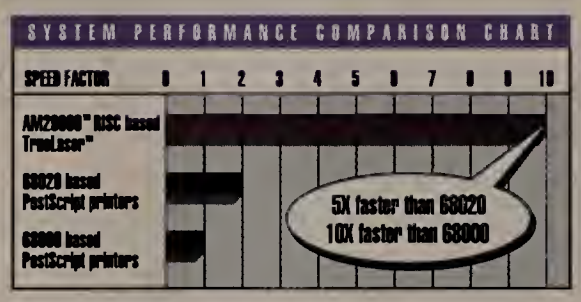

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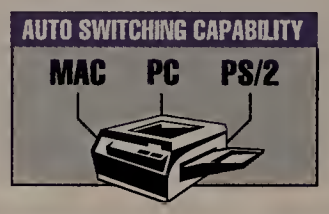

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Circle 162 on reader service card

WINDOWS WORKSHOP

Practical answers to your questions about Windows

Jesse Berst and Scott Dunn

Perking Up Print Manager

Q. *Print Manager is supposed to speed up my printing, but as a spooler it seems singularly sluggish. What can I do to accelerate printing from* Windows *applications?*

Barbara Roll
Auburn, Washington

A. The answer depends on what you want to speed up—printing your document or regaining control of your *Windows* application after printing begins.

If you want faster output from your printer, disable Print Manager entirely. Open the Control Panel, double-click the Printers icon, and uncheck the Use Print Manager box.

On the other hand, if you just want to get back to work quickly, try this: First, create a RAM disk with the RAMDRIVE utility that comes with *Windows*. For example, to create a 1MB RAM drive in extended memory, you'd insert this line in CONFIG.SYS *after* the line that installs HIMEM.SYS:

DEVICE=C:\WINDOWS\RAMDRIVE.SYS 1024 /E

Next, in your AUTOEXEC.BAT, create a TEMP directory on the RAM drive. RAMDRIVE automatically assigns itself the drive letter following that of the last actual drive. If the RAM drive is E:, you would add the following lines to AUTOEXEC.BAT:

MD E:\TEMP
SET TEMP = E:\TEMP

This forces *Windows* to spool print files to RAM rather than to disk, which can turbocharge output.

(Another speed tip: If you need to work while printing, you can boost your application's speed by opening Print Manager and choosing *Low priority* from the Options menu. This slows down printing but lets you work faster.)

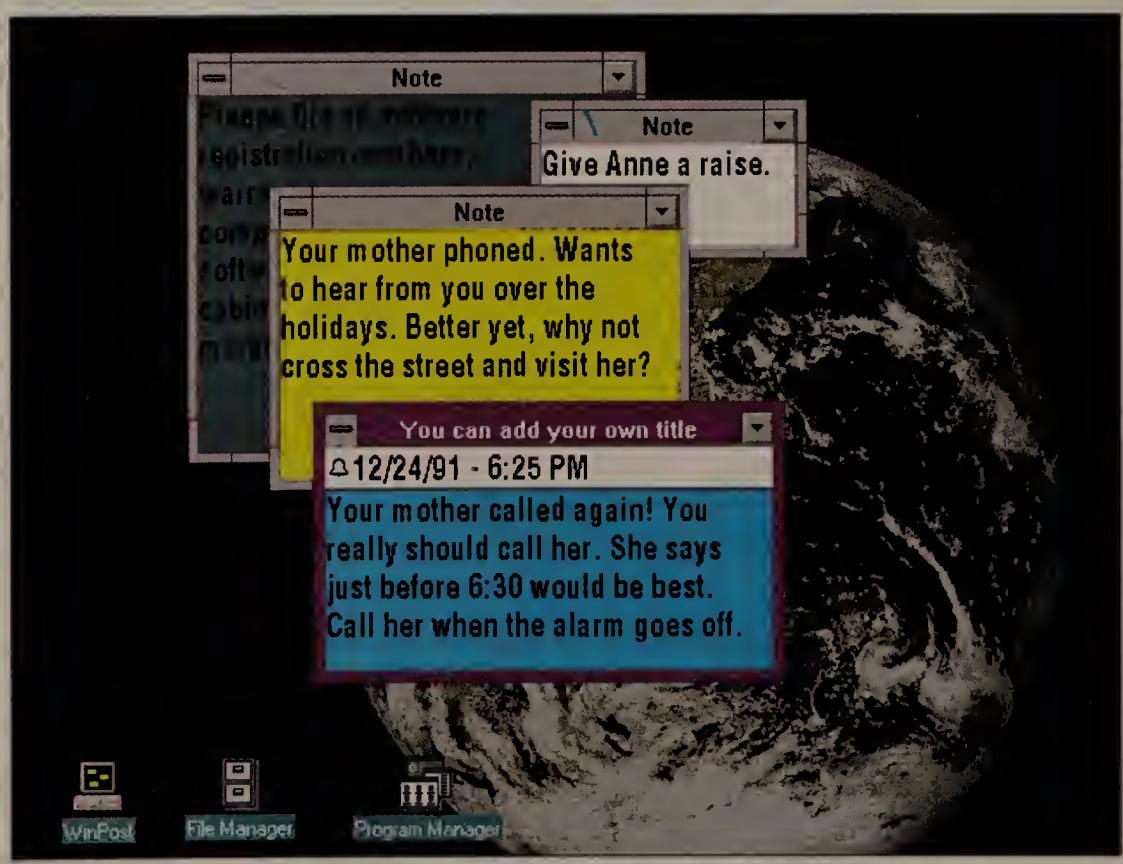
Warning: Don't try the RAM drive trick unless you have at least 4MB of RAM, preferably 8MB. The TEMP directory you set up will be used not just by Print Manager but also by *Windows* and *Windows* applications. The RAM drive should be at least 1MB, and at least 2MB if you use graphics applications such as *PageMaker* or *Corel Draw.*

Out of Memory Blues

Q. *I run* Windows *in 386-enhanced mode. One of my DOS applications needs 1MB of expanded RAM, so I specified 1024K of EMS memory in the KB Required field in its Advanced Options PIF file. But I'm still getting 'Out of memory' messages from my application. What's going on?*

Dolores Grimes
Augusta, Georgia

Windows Toolbox



Tired of Post-it notes all over your monitor? WinPost's electronic version offers some handy extras: choice of colors and sizes, notes tied to specific applications, a keep-on-top option, as well as printing, searching, and alarms. It's $30, but you'll never again have to scrape that gummy stuff off your screen. Eastern Mountain Software, P.O. Box 20178, Columbus, OH 43220; 614/798-0910; credit card orders 800/242-4775, 713/524-6398 (fax). Reader service no. 619

ANTHONY RUSSO

A. Believe it or not, *Windows* can't do math as well as a $3 calculator. Because of the idiosyncrasies of EMS calculation, you have to ask for more memory than you really want. Tell your PIF to provide 1536K of expanded memory, and you'll be giving your program the 1024K it needs.

Drive A: to WordPerfect, Drive A: to...

Q. *When I run* WordPerfect 5.1 *inside* Windows, *I get error messages when I try to access my floppy drives (A: and B:). This doesn't happen when I run* WordPerfect *outside* Windows. *What gives?*

Janet Jenson
Washington, D.C.

A. This is a problem with *WordPerfect 5.1.* If you have the latest version of *WordPerfect,* you can correct it by typing **/C** or **/P** in the Optional Parameters field of *WordPerfect*'s PIF file.

EPS In, Garbage Out

Q. *I can't seem to import* some *EPS files into* PowerPoint for Windows. *What am I doing wrong?*

Anita Anders
Cooperstown, New York

A. Nothing. Most graphics programs can't import or display an EPS file unless it's accompanied by a TIFF image of the file. Use a program like *Hotshot* to convert the EPS file into a TIFF image, or pull the EPS file into *Corel Draw* and export it with the Include Image Header option checked.

Mouse Troubles

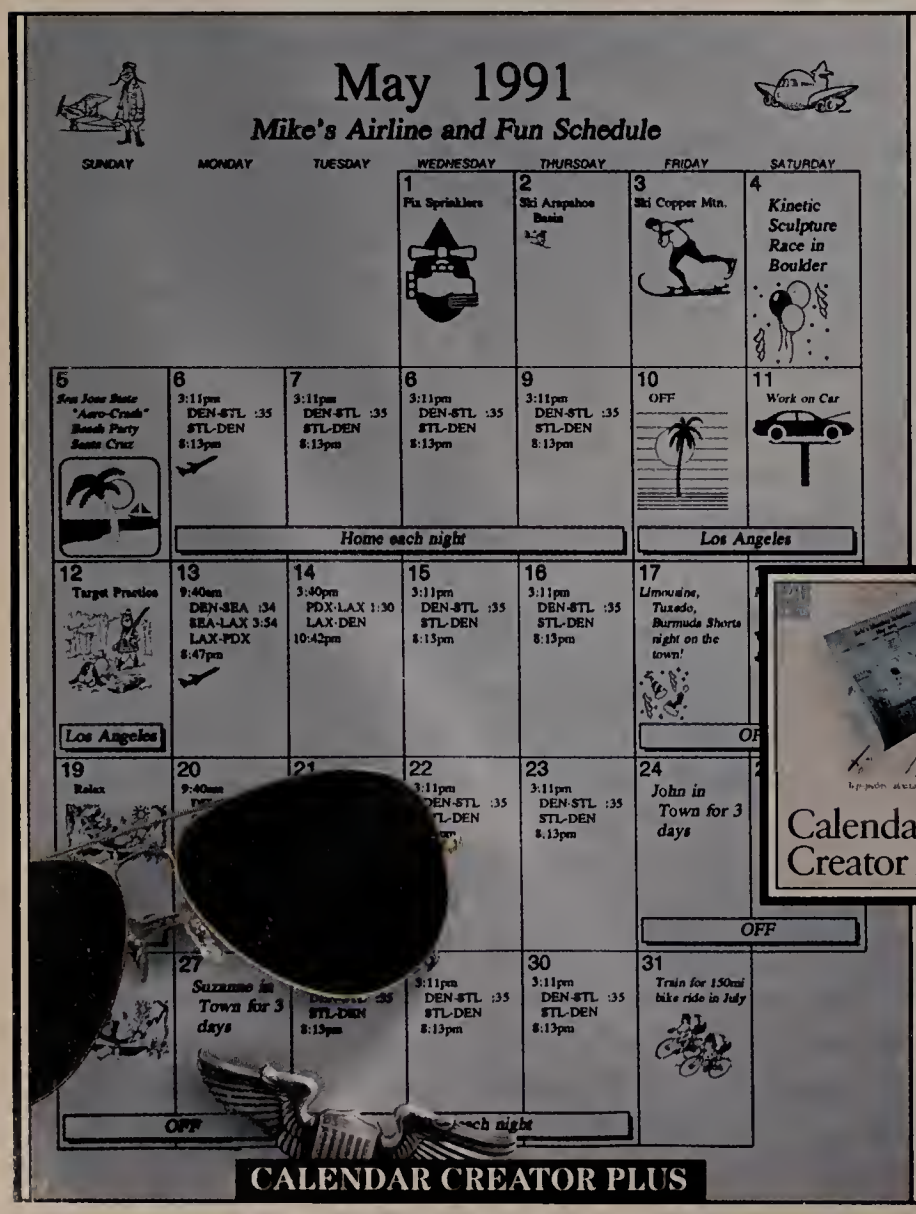
Q. *I am having a problem using my mouse in 386-enhanced mode. It works fine with* Windows *applications and DOS applications running full screen. But when I run a DOS application in a window, the mouse dies.*

Sarah Scot
Seattle, Washington

A. This limitation is normal in the hand-to-mouse existence of *Windows* users. When a DOS application runs in a window, *Windows* gets dibs on the mouse. You can use the mouse at this point only for transferring data to the Clipboard. (Just click in the window, and you'll see 'Select Program' appear on the title bar; drag to select the area to copy.) For other jobs, you'll have to give your mouse a rest.

Send your Windows *questions to* Windows Workshop, PC World, *501 Second St. #600, San Francisco, CA 94107-1431; CompuServe 74055,412; MCI Mail 179-3813; or 415/442-1891 (fax).* PC World *pays $50 for published questions. Sorry, we cannot acknowledge submitted materials.*

Jesse Berst is a contributing editor for PC World. *He and Scott Dunn are coauthors of* 101 Windows Tips *(Peachpit Press, Berkeley, California, 1991).*



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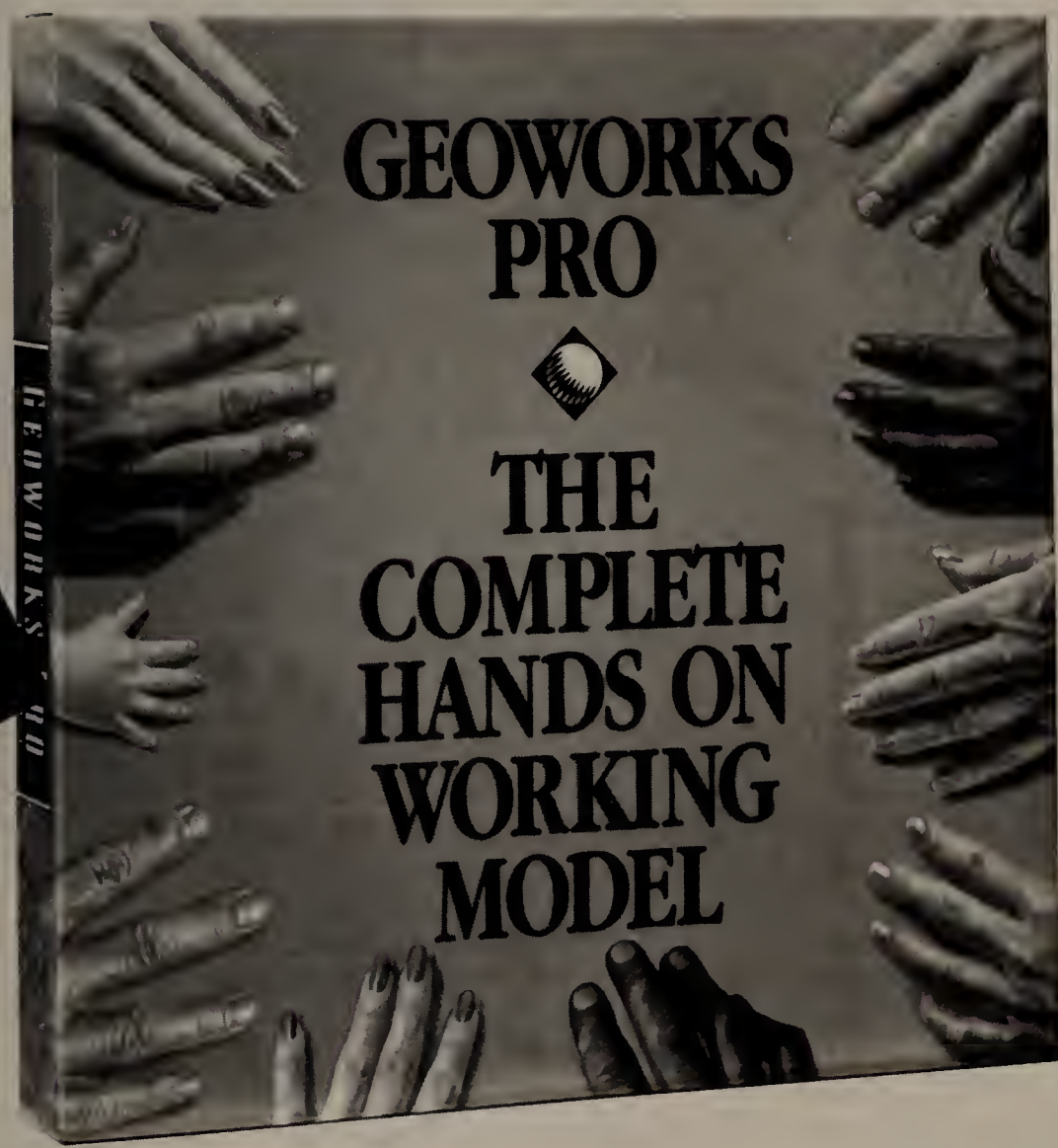

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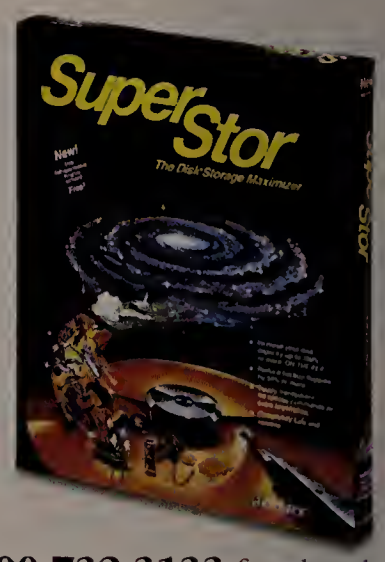

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Edited by Brett Glass

Unconditional Save for 1-2-3

File-saving *1-2-3* macros present a problem: When you write the macro, you don't know whether the user will be given a 'Cancel or Replace' option. For instance, the macro statement '/fsWIDGET~' will save the current worksheet under the name WIDGET—*if* WIDGET.WK1 is not already in existence. But when the macro is used to save the file a second time, *1-2-3* will ask the user whether the current version should be replaced.

There is a solution: With the help of the {OPEN} and {CLOSE} macro commands, you can ensure the existence of a file to be overwritten by creating one automatically. This two-line macro demonstrates the technique:

{OPEN "WIDGET.WK1",W}{CLOSE}
/fsWIDGET~r

The {OPEN} command tells the program to open a file named WIDGET.WK1 for output. {CLOSE} then closes the file unchanged. If the file doesn't already exist, these two commands create it—empty and ready to be overwritten. The next line instructs *1-2-3* to save the worksheet file, replacing the file already on the disk.

This technique can be used whenever a macro uses a command that writes to disk, such as File Save, File eXtract, and Print File.

James R. Knoblock
Bridgeport, West Virginia

The Viper: Superclean File Wipes

When you delete a DOS file, nothing is actually removed from the disk. While this gives you the opportunity to unerase your files, it also means that anyone with the right software can examine your confidential, "destroyed" data. Both *The Norton Utilities* and *PC Tools* come with utilities that can erase files beyond all hope of recovery. But if you don't have one of these collections, you can accomplish the same thing with my WIPE program.

When you run WIPE, give it the name of your file as a parameter. Once you've verified that you really want to delete the file, it's wiped according to U. S. Department of Defense standard DOD 5220.22M for destroying confidential data. The file is first overwritten with 0s, then 1s, three times. It's then overwritten again with a random value. I've added one step not specified by the DOD: The name of the file is changed to X prior to deletion. This makes it more difficult to recover the file with an unerase program. Why? Because many such programs can't restore more than one deleted file per directory with a one-character name.

Vincent D. O'Connor
Babbitt, Minnesota

Editor's note: Mr. O'Connor's original BASIC program couldn't wipe files greater than 64K. However, it seemed like such a good idea that I decided to rewrite it in Turbo Pascal, *taking advantage of Pascal's better file handling (see* **LISTING 1***).*

After compiling the program, move it to a directory listed in your AUTOEXEC.BAT file's PATH command. One caveat, though: If you have a disk cache that has delayed writes, it may prevent this utility from scrubbing the disk more than once. If you use such a cache, disable it before wiping files.

Sub-Rosa Subdirectories

Here's a simple, effective way to protect your subdirectories from prying eyes. When using the MKDIR or MD command, add some blanks (by holding down the <Alt> key and typing 255) to the end of the file name. For example, at the C> prompt, type **MD NEW**, then press **<Alt>-255** and then **<Enter>**. This will generate one blank character to the right of the subdirectory name NEW. (You can generate more blanks if you like. The whole directory name including the invisible characters must not exceed eight characters plus a three-character extension.)

Whenever a user tries to enter CD \NEW without entering the blank character (or the correct number of blanks), an 'Invalid directory' message will appear. Of course, this method is not foolproof, but it offers some cheap and basic security right out of DOS itself.

Winston Wan
Houston, Texas

Escape From DOS

I was tinkering with ANSI.SYS's special escape sequences and found myself wishing for an easier way to invoke them from a batch file. After all, ANSI.SYS can do a lot of neat tricks. For instance, the character sequences Esc[44m and Esc[37m, where Esc is the escape char-

ANTHONY RUSSO

```
program Wipe;
{$I-} {$S-} {$R-}

var
 f    : file;
 pass : Integer;
 ch   : Char;

procedure Stop;
 begin
  Writeln('Error wiping file!');
  Halt
 end;

procedure ErrorCheck;
 begin
  if IOResult <> 0 then
    Stop
 end;

procedure WipeWith (var f : file;
                        c : Char);
 var
  i : LongInt;
  r : Word;
 begin
  Reset(f,1); ErrorCheck;
  for i := 1 to FileSize(f) do
    begin
      BlockWrite(f,c,1,r);
      if r <> 1 then
        Stop
    end;
  Close(f); ErrorCheck;
 end;

begin {Wipe}
 if ParamCount <> 1 then
  begin
    Writeln('Usage:
    Type WIPE <filename>');
    Exit
  end;
 Write('Are you SURE (Y/N)? ');
 Readln(ch);
 if UpCase(ch) <> 'Y' then
  Halt;
 Randomize;
 Assign(f,ParamStr(1))
 ErrorCheck;
 for pass := 1 to 3 do
  begin
    WipeWith(f,#0);
    WipeWith(f,#1)
  end;
 WipeWith(f,Chr(Random(256)));
 Rename(f,'X'); ErrorCheck;
 Erase(f); ErrorCheck;
 Writeln('Done!')
end.
```

LISTING 1: Wipe secret files from your disk with this Pascal program.

Command	Action
ESC 44;37m	Make the background blue, the foreground white
ESC 12;40H	Move the cursor to row 12, column 40
ESC s	Save the cursor position
ESC u	Restore the saved cursor position
ESC K	Erase to the end of the current line
ESC 5B	Move the cursor down five lines
ESC 0;68;"DIR";13p	Make the <F10> key execute the DIR command at the DOS prompt
ESC 63;92p	These two commands, executed in succession,
ESC 92;63p	swap the backslash and question mark keys

TABLE 1: These sample commands show some tricks you or your batch files can do using ESC.COM.

acter (ASCII 27), will change the colors on the DOS command screen, making the background blue and the characters white. You can create some attractive color menus this way.

Unfortunately, special measures are usually required to get the Esc character into a batch file. To solve this problem, I wrote a small utility that makes ANSI.SYS functions available from the DOS command line.

Richard C. Jones
Throop, Pennsylvania

Editor's note: The DEBUG script in **LISTING 2** *creates ESC.COM. Copy the listing to an ASCII text file called ESC.DAT. At the DOS prompt, type* **DEBUG < ESC.DAT**. *The file ESC.COM will appear in the current directory. To use ESC.COM, move the file to a directory listed in your PATH command and be sure the command 'DEVICE = C:/DOS/ANSI.SYS' is in your CONFIG.SYS file.* **TABLE 1** *shows a small sampling of things you can do with this program.*

Finding Your Place in WordPerfect

As a new convert from *DisplayWrite 4* to *WordPerfect 5.1*, I missed *DisplayWrite*'s Paper Clip feature, which allows you to return to the place where you left off when you last saved the document. This feature is important for anyone who has to do a lot of proofreading, especially if it's often interrupted. Consequently, I wrote macros for marking your place with a "paper clip" and then finding it again.

The first macro, Alt-Z, inserts a character string into the text at the place to which you wish to return. To create this macro, bring up a document and press **<Ctrl>-<F10>**. At the 'Define macro' prompt, type **ALTZ** and press **<Enter>**; for the description, type **Set Marker** and press **<Enter>**. The phrase 'Macro Def' will blink in the lower left corner of your screen. To redline the marker and make it more visible, press **<Ctrl>-<F8>** (Font), followed by the letters **A** (Appearance) and **R** (Redline). Enter a "smiley face" character by holding down the **<Alt>** key as you type **001** on the numeric keypad, then releasing

```
N esc.com
A100
mov BX,80
mov CX,1
mov DX,CX
add CL,[BX]
mov word [BX],5B1B
mov AH,40
xchg DX,BX
int 21
ret

RCX
15
W
Q
```

LISTING 2: Run this script through DEBUG to produce ESC.COM, which lets you easily invoke ANSI.SYS's screen and keyboard functions. There are no uppercase letter O's in this script.

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<Alt>. Now enter a "reversed" smiley face by holding down **<Alt>** while typing **002** on the numeric pad. Finally, press **<Right>** once and press **<Ctrl>-<F10>** to end the macro recording.

The second macro, Alt-X, finds and deletes the marker created by Alt-Z, taking you to the exact place you left before. To create Alt-X, press **<Ctrl>-<F10>** again, this time naming the macro **ALTX** and giving it the description **Find Marker**. Once you've started recording the macro, press **<Home>** twice, then **<Up>** to make sure you're at the top of your document. To find the marker, press **<F2>** (Search), enter the two smiley faces as above (**<Alt>-001** and **<Alt>-002**), and press **<F2>** again. To delete the marker and its formatting, press **<Delete>**, then **Y** (Yes), and press **<Backspace>** twice. Finally, press **<Ctrl>-<F10>** to stop recording the macro.

I always execute Alt-X upon entering any existing document. This avoids the possibility of leaving an unwanted mark in a document.

Berton G. Yeaton, Jr.
Jacksonville, Florida

Supervising DOS 5.0 Swaps

My latest DOS 5.0 discovery lets you speed up task-switching by telling DOSSHELL to swap tasks to a RAM disk (or your fastest hard drive). DOSSHELL looks to a variable called SWAP to see where to put its files, and a simple **SET TEMP=E:\TEMPDIR** command in your AUTOEXEC.BAT file—assuming TEMPDIR is a directory of your drive E:RAM disk—will do the trick.

A few details can help you understand the process. When DOSSHELL executes a task from the Task Menu, two files are created. The first is a small batch file that contains the commands to run the program; it's named *XXXX*-DOSC.BAT, where *XXXX* is an arbitrary string of characters. The second file is written when the task is swapped out. It's called ~DOS100*X*.TMP, where *X* is an arbitrary character.

The location of that second file can make a big performance difference. If

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GETTING STARTED

Open Help index	**<F1>** or **H**elp **I**ndex
Get context sensitive help	**<Shift>-<F1>**, click on an object
Create new document	**<Shift>-<F4>** or **F**ile **N**ew
Open existing document	**<F4>** or **F**ile **O**pen, select directory/file
Toggle insert/typeover	**<Insert>**
Undo last edit	**<Alt>-<Backspace>** or **E**dit **U**ndo
Save document	**<Shift>-<F3>** or **F**ile **S**ave
Save document with new name/ file format	**<F3>** or **F**ile Save **A**s, type name/select file format, **S**ave
Close document	**<Ctrl>-<F4>** or **F**ile **C**lose
Leave WordPerfect for Windows	**<Alt>-<F4>** or **F**ile **E**xit

CUSTOMIZING THE DISPLAY

Note: When a document has graphics, fonts, or columns, you can type and edit faster if you hide graphics or work in draft mode. The ruler and button bar give you quick access to commands. You can rearrange buttons, assign macros to them, and save and retrieve button sets.

Display/hide ruler	**<Alt>-<Shift>-<F3>** or **V**iew **R**uler
Display/hide button bar/draft view/graphics	**V**iew **B**utton Bar/**D**raft Mode/**G**raphics
Set default font	**F**ile **S**elect Printer, highlight printer name, Initial **F**ont, highlight font name
Display/hide horizontal/vertical scroll bars	**F**ile **P**references **D**isplay **H**orizontal/ **V**ertical
Reveal codes	**<Alt>-<F3>** or **V**iew Reveal **C**odes
Arrange document windows	**W**indow **C**ascade/**T**ile
Scroll left/right	**<Ctrl>-<Page Up>/<Ctrl>-<Page Down>**

MOVING THE INSERTION POINTER

Note: The easiest way to get around is to click the mouse where you want to go. However, using keyboard shortcuts is often quicker. To go to the:

Beginning/end of line	**<Home>/<End>**
Beginning of line before codes	**<Home><Home>**
Beginning/end of document	**<Ctrl>-<Home>/<Ctrl>-<End>**
Beginning of document before codes	**<Ctrl>-<Home><Ctrl>-<Home>**
Next/preceding word	**<Ctrl>-<Right>/<Ctrl>-<Left>**
Next/preceding paragraph	**<Ctrl>-<Down>/<Ctrl>-<Up>**
Top/bottom of window	**<Page Up>/<Page Down>**
Next/preceding window	Go to bottom/top of window, **<Page Down>/<Page Up>**
First line of next/preceding page	**<Alt>-<Page Down>/<Alt>-<Page Up>**
Numbered page	**<Ctrl>-G**, type page number
Previous cursor position	**<Ctrl>-G<Alt>-L**

SELECTING TEXT

Select block with keyboard	**<F8>** or hold down **<Shift>**, move insertion pointer
Select block with mouse	Click end of block, drag to other end
Select block with both	Click end of block, hold down **<Shift>** and click other end
Select word with mouse	Double-click word
Select sentence with mouse	Triple-click sentence
Select paragraph with mouse	Quadruple-click paragraph

EDITING TEXT

Note: Most actions affect selected text. If no text is selected, some actions (for example, a typeface change) affect all text following the insertion point, while others (for example, turning on bold) affect only new text entered after the insertion point. You can perform some actions (indicated by *) only when text is not selected.

Copy to clipboard	**<Ctrl>-<Insert>** or **E**dit **C**opy
Cut to clipboard	**<Shift>-<Delete>** or **E**dit **C**ut
Paste from clipboard	**<Shift>-<Insert>** or **E**dit **P**aste
Add text from file	**F**ile **R**etrieve, select directory/file, **R**etrieve **Y**es
Delete selection	**<Delete>**
Delete next character *	**<Delete>**
Delete preceding character *	**<Backspace>**
Delete to end of line *	**<Ctrl>-<Delete>**
Delete word *	**<Ctrl>-<Backspace>**
Use Undelete tool *	**<Alt>-<Shift>-<Backspace>** or **E**dit **U**ndelete, **N**ext/**P**revious **R**estore
Insert current date	**<Ctrl>-<F5>** or **T**ools **D**ate **T**ext
Start new page *	**<Ctrl>-<Enter>**
Sort lines/paragraphs/merge records	**<Ctrl>-<Shift>-<F12>** or **T**ools **S**ort, select **L**ine/**P**aragraph/**M**erge **R**ecord, define key(s), choose sort order
Search for text/codes	**<F2>** or **E**dit **S**earch, type text/codes to search for, select options, **S**earch
Replace text/codes	**<Ctrl>-<F2>** or **E**dit **R**eplace, type text/codes to replace, type replacement, select options, **R**eplace/Replace **A**ll
Insert optional hyphen	**<Ctrl>-<Shift>-<Hyphen>**
Activate hyphenation *	**<Shift>-<F9>** or **L**ayout **L**ine, Hyphenation **H**yphenation On,
Insert hard hyphen/space	**<Ctrl>-<Hyphen>/<Ctrl>-<Space>**

FORMATTING

Justify left	**<Ctrl>-L** or **L**ayout **J**ustification **L**eft
Justify right	**<Ctrl>-R** or **L**ayout **J**ustification **R**ight
Center text	**<Ctrl>-J** or **L**ayout **J**ustification **C**enter
Justify full	**<Ctrl>-F** or **L**ayout **J**ustification **F**ull
Indent paragraph *	**<F7>** or **L**ayout **P**aragraph **I**ndent
Indent both sides of entire paragraph *	**<Ctrl>-<Shift>-<F7>** or **L**ayout **P**aragraph **D**ouble Indent
Set hanging indent *	**<Ctrl>-<F7>** or **L**ayout **P**aragraph **H**anging Indent
Release margin	**<Shift>-<Tab>** or **L**ayout **P**aragraph **M**argin Release
Bold text	**<Ctrl>-B** or **F**ont **B**old
Italicize text	**<Ctrl>-I** or **F**ont **I**talic
Set normal text	**<Ctrl>-N** or **F**ont **N**ormal
Underline text	**<Ctrl>-U** or **F**ont **U**nderline
Set subscript/superscript text	**F**ont **S**ubscript/**S**uperscript
Set default font for document *	**<Ctrl>-<Shift>-<F9>** or **L**ayout **D**ocument, Initial **F**ont, select font name
Select font	**<F9>** or **F**ont **F**ont, select Font, select Size and Appearance
Select type size	**<Ctrl>-S** or **F**ont **S**ize, select size
Set line spacing	**<Shift>-<F9>** or **L**ayout **L**ine, **S**pacing, type or select Spacing
Set margins	**<Ctrl>-<F8>** or **L**ayout **M**argins, set
Set tab(s)	**<Shift>-<F9>** or **L**ayout **L**ine, **T**ab Set, select type and other options, enter Position, **S**et Tab, repeat for each tab
Add columns	**<Alt>-<Shift>-<F9>** or **L**ayout **C**olumns, **D**efine, type number of columns, select and type options

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USING STYLES

Create styles	**<Alt>-<F8>** or **L**ayout **S**tyles, **C**reate, type name and description, select Type and Enter Key Inserts, *OK*, enter codes/text in Style Editor, **C**lose **C**lose
Save styles	**<Alt>-<F8>** or **L**ayout **S**tyles, Save **A**s, type file name, select directory, **S**ave **C**lose
Retrieve style sheet	**<Alt>-<F8>** or **L**ayout **S**tyles, **R**etrieve, select style sheet, **R**etrieve
Apply styles	**<Alt>-<F8>** or **L**ayout **S**tyles, select style, **O**n

USING GRAPHICS

Add graphic containing figure	**<F11>** or **G**raphics **F**igure **R**etrieve, select graphic file name, **R**etrieve
Add graphic containing text	**<Alt>-<F11>** or **G**raphics Text **B**ox **C**reate, type text, **C**lose
Add graphic from clipboard	**<Shift>-<Insert>**
Add horizontal lines	**<Ctrl>-<F11>** or **G**raphics **L**ine **H**orizontal, type or select options
Add vertical lines	**<Ctrl>-<Shift>-<F11>** or **G**raphics **L**ine **V**ertical, type or select options
Edit graphic	Double-click on graphic
Move graphic	Click on graphic, drag to new position
Size graphic	Click on graphic, drag corner or side handle

USING TABLES

Create new table	**<Ctrl>-<F9>** or **L**ayout **T**ables, **C**reate, type number of columns and rows
Convert text to table	Select text, **<Ctrl>-<F9>** or **L**ayout **T**ables, **C**reate **T**abular/**P**arallel Column
Add contents to cell	Place insertion point in cell, type or paste contents
Add column(s)/row(s) to left/above current cell	Place insertion point in cell to right or below, **<Ctrl>-<F9>** or **L**ayout **T**ables, **I**nsert **C**olumns/**R**ows **<Tab>**, type number to add
Add row above current cell	**<Alt>-<Insert>**
Add row below current cell	**<Alt>-<Shift>-<Insert>**
Delete current row	**<Alt>-<Delete>**
Select cell(s)	Move mouse pointer toward top or left cell border until it changes to a fat arrow, click, drag to select more cells
Select column(s)/row(s)	Double-click fat arrow pointer on top/left border of any cell in column/row, drag to select more columns/rows
Set column width and other format options	Select cell(s) in column(s), **<Ctrl>-<F9>** **L**ayout **T**ables, Column Column Width, type new width, set other options
Set row height	Select cell(s) in row(s), **<Ctrl>-<F9>** or **L**ayout **T**ables, **R**ow **A**uto/**F**ixed (if fixed, **<Tab>**, type height)
Change line style(s)	Select cells, **<Ctrl>-<F9>** or **L**ayout **T**ables, **L**ines, select options
Delete column(s)/row(s)/their contents	Select column(s)/row(s), **<Delete>** **C**olumn(s)/**R**ow(s)/**C**ontents (text only)
Sort table rows	Select cells in rows to sort, **<Ctrl>-<Shift>-<F12>** or **T**ools **S**ort, choose Sort Order, define keys and cell of row to sort by
Convert table to text	Select all cells, **<Delete>** **T**able Structure

PROOFING AND PRINTING

Check spelling of document	**<Ctrl>-<F1>** or **T**ools **S**peller, select type of Check, **S**tart, use Speller options to correct, **C**lose when done
Edit during spelling check	Click in document window, make changes, click **R**esume in Speller
Check definition of word	Place insertion point in word, **<Alt>-<F1>** or **T**ools **T**hesaurus
Replace word with synonym	Place insertion point in word, **<Alt>-<F1>** or **T**ools **T**hesaurus, select synonym, **R**eplace
Preview printed page	**<Shift>-<F5>** or **F**ile Print Preview
Print document	**<F5>** or **F**ile **P**rint, type or select options, **P**rint

OUTLINING

Begin outline	**T**ools **O**utline Outline **O**n, **<Enter>**, type text, **<Enter>** or change levels
Change level down/up	**<Enter>**, **<Tab>**/**<Shift>-<Tab>**, type text, **<Enter>** or change levels
Insert tab after paragraph number	**<Ctrl>-<Tab>**
End outline	**T**ools **O**utline Outline **O**ff
Move insertion point to next/previous paragraph number	**<Alt>-<Right>**/**<Alt>-<Left>**
Move insertion point to next/previous paragraph number of same or higher level	**<Alt>-<Down>**/**<Alt>-<Up>**
Change numbering style	**<Alt>-<Shift>-<F5>** or **T**ools **O**utline **D**efine, select level and style, add period if desired

Editing families

Note: An outline *family* is any paragraph number level, its text, its subordinate paragraph number levels, and their text.

Move/copy family	Place insertion point in highest paragraph level of family, **T**ools **O**utline **M**ove Family/**C**opy Family, use cursor keys to move/change levels, **<Enter>**
Delete family	Place insertion point in highest paragraph level of family, **T**ools **O**utline **D**elete Family, **Y**es

USING MACROS

Note: You cannot record mouse movements except those that select menu items, cycle windows, and close documents.

Record macro	**<Ctrl>-<F10>** or **M**acro **R**ecord, type file name, type description if you want, **R**ecord, enter text/commands, **<Ctrl>-<Shift>-<F10>** or **M**acro **S**top
Run macro	**<Alt>-<F10>** or **M**acro **P**lay, type macro name or select it from list, **P**lay
Assign macro to menu	**M**acro **A**ssign to Menu **I**nsert, type macro name, or click Select File button at right of macro name box and select macro, **S**elect
Edit macro	**F**ile **O**pen, type macro name or select Macros from Quick List, **O**pen, select macro from list, **O**pen *OK*, edit macro, **F**ile **C**lose **Y**es **S**ave

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an environment variable called TEMP exists, DOSSHELL uses the drive and directory it indicates. Otherwise, it looks for an environment variable called TMP and uses it as the directory. Finally, if neither variable exists, it uses the DOSSHELL start-up directory—usually C:\DOS.

Be aware, however, that certain other programs, including many Microsoft languages, also use the TEMP and TMP environment variables. You may have to abandon the faster swapping if you have a conflict.

Malcolm Michael
Castro Valley, California

Editor's note: Using a RAM disk for DOSSHELL swaps is a good idea, but beware: Swapped tasks can take up lots of space, so you'll need a very large RAM disk.

A Secret Correction

A lot of readers had problems with the SECRET.SCR listing published on page 303 of our November 1991 issue. The listing was supposed to produce a program that, when run in your AUTOEXEC.BAT file, freezes your system until a password is typed. What we discovered the hard way is that DEBUG's built-in assembler varies from one version of DOS to another. The result: The assembler script produced a working program with some versions of DEBUG but not with others.

The script in **LISTING 3** *doesn't use the assembler and therefore will work on any version of DEBUG. As with the original, enter the script into an ASCII text file called SECRET.SCR, then double-check the code for any errors; I recommend checking* down *the columns rather than across them. Note that there are no occurrences of the uppercase letter* O *in this file; any character that looks like an* O *is a zero.*

There is one change you should make in the listing: Replace the word 'Password' with your own eight-character, case-sensitive password. Once the file is saved and checked, type **DEBUG<SECRET.SCR** *at the DOS prompt to create SECRET.COM.*

We apologize for the confusion.

Have a macro, batch file, short program, or general tip you're proud of? Star-Dot-Star *pays $25 to $200 per tip used. Send your tips to* Star-Dot-Star, PC World, *501 Second St. #600, San Francisco, CA 94107; CompuServe 74055,412; MCI Mail PC World Editorial; or 415/442-1891 (fax). Sorry, we cannot acknowledge submitted materials.*

Brett Glass is a contributing editor for PC World.

```
N secret.com
E100 BE 48 01 E8 30 00 C6 06 47 01 00 BF 7C 01 B9 08
E110 00 32 E4 CD 16 3A 05 74 04 FE 06 47 01 BE 7A 01
E120 E8 13 00 47 E2 EB BE 6A 01 80 3E 47 01 00 75 01
E130 C3 E8 02 00 EB CA B4 0F CD 10 FC AC 3C 24 74 06
E140 B4 0E CD 10 EB F4 C3 00 0D 0A 45 6E 74 65 72 20
E150 38 2D 63 68 61 72 61 63 74 65 72 20 41 63 63 65
E160 73 73 20 43 6F 64 65 3A 20 24 0D 0A 41 63 63 65
E170 73 73 20 64 65 6E 69 65 64 24 2A 24
A17C
DB 'Password'

RCX
84
W
Q
```

LISTING 3: Run this script (corrected from the one in our November 1991 issue) through DEBUG to produce SECRET.COM, a password protection program.

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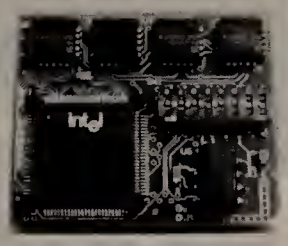

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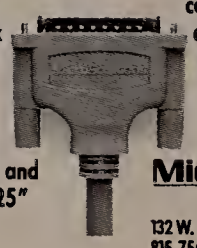

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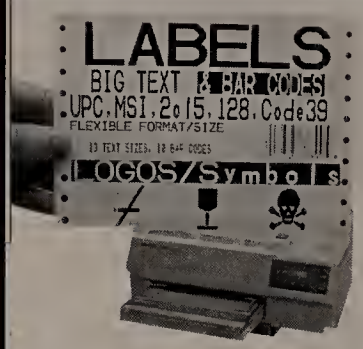

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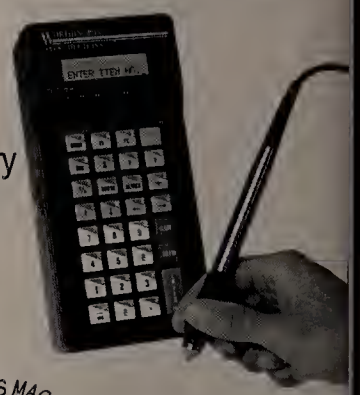

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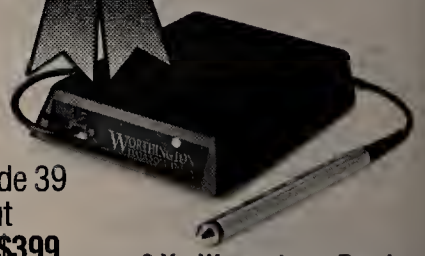

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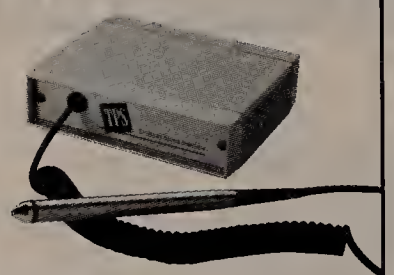

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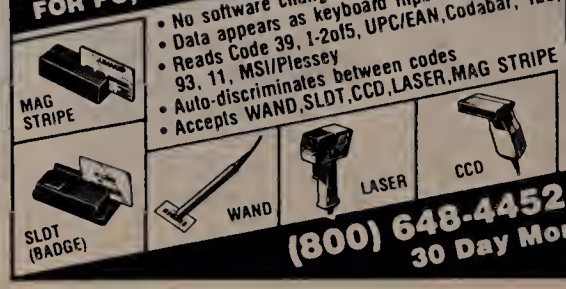

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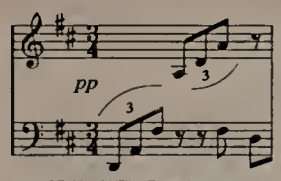

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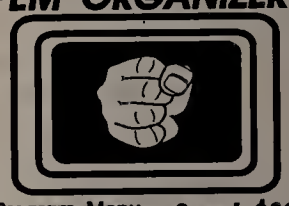

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- ✓ 8K processor & 128K external static RAM cache.
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- ✓ Full size or upright (shown) chassis with keylock, speed and reset buttons.
- ✓ 14" SVGA Non-Interlaced color monitor, 1024x768 resolution, with 1mb VGA card.
- ✓ Clock calendar, parallel port, two serial ports, and a game port.
- ✓ Key Tronic 101 key keyboard.
- ✓ 230 watt power supply
- ✓ 8 ISA slots, 5 drive bays.
- ✓ Windows & Mouse add $69.
- ✓ MS-DOS 5.0.
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486/33	80mb	100mb	200mb	340mb
Mono	$1,929	$1,999	$2,249	$2,649
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- ✓ 4 megabytes high speed RAM.
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- ✓ 1.2mb 5.25" and 1.44mb 3.5" floppy drives.
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- ✓ 387-DX coprocessor socket.
- ✓ 200 watt power supply.
- ✓ 14" SVGA Non-Interlaced color monitor, 1024x768 resolution, with 1mb VGA card.
- ✓ Clock calendar, parallel port, game port and two serial ports.
- ✓ Key Tronic 101 key keyboard.
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Standard Features

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- ✓ 2 megabytes of high speed RAM.
- ✓ 80 mb 20ms IDE hard disk, 1:1 interleave.
- ✓ 1.2mb 5.25" and 1.44mb 3.5" floppy drives.
- ✓ Standard chassis (shown) or mini-tower with keylock, speed and reset buttons.
- ✓ 200 watt power supply
- ✓ 14" Super VGA color monitor with 16 bit VGA card with 512K.
- ✓ Clock calendar, parallel port, two serial ports, and game port.
- ✓ Key Tronic 101 key keyboard.
- ✓ 8 expansion slots, 5 drive bays.
- ✓ 80387-SX coprocessor socket.
- ✓ Full Shadow RAM and LIM 4.0 EMS support.
- ✓ Windows & Mouse add $69.
- ✓ MS-DOS 5.0.
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386/SX20	40mb	80mb	100mb	200mb
Mono	$969	$1,099	$1,169	$1,419
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Standard Features

- ✓ 16mhz Intel™ 386-SX processor.
- ✓ 2 megabytes of fast RAM.
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- ✓ 1.2mb 5.25" and 1.44mb 3.5" floppy drives.
- ✓ Standard , mini tower, or mini desktop (shown) chassis with keylock, speed and reset buttons.
- ✓ 200 watt power supply
- ✓ 14" Super VGA color monitor with 16 bit VGA card with 512K.
- ✓ Clock calendar, parallel port, two serial ports, and a game port.
- ✓ Key Tronic 101 key keyboard.
- ✓ 8 expansion slots, 5 drive bays.
- ✓ 80387-SX coprocessor socket.
- ✓ Full Shadow RAM and LIM 4.0 EMS support.
- ✓ Windows & Mouse add $69.
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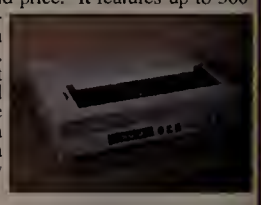

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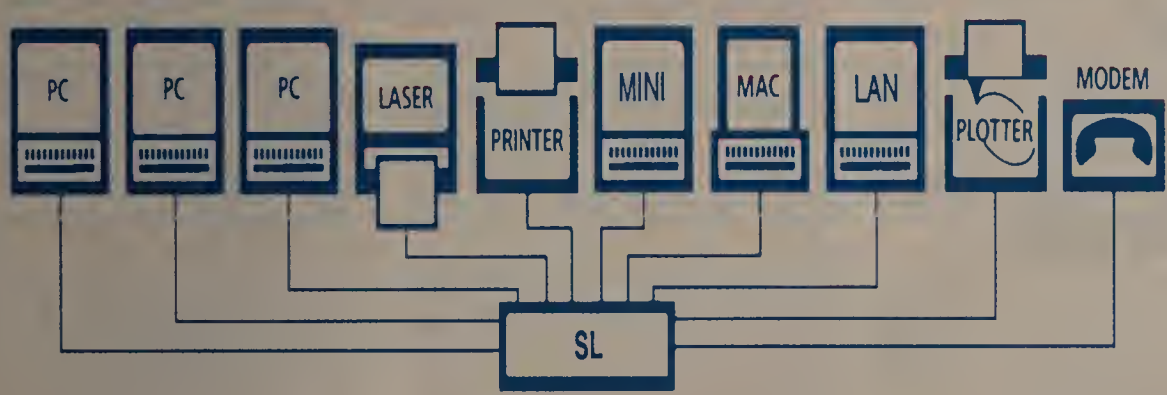

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HWP	5 Parallel	3/2, 4/1	256KB-16MB	$295
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Premium 386/33	1Meg	500718-002		69.00
Premium II	1Meg	500780-003	WP8	85.00
386SX20, 486-25, 25E, 33	4Meg	500780-004	WP8	209.00
Premium Tower, 386/33TE, 486/25TE, 486/33TE	8Meg	500780-001	WPB	418.00

ZENITH MEMORY UPGRADES

MODEL#	AMT. UPGRADED	ZENITH PART#	PRICE
Z386/33, 25, 20	1Meg	ZA3800ME	89.00
Z386/33, 25, 20	4Meg	ZA3800MK	249.00
Z248, Z286LP Z386SX	2Meg	Z-605-1 *modules*	149.00

IBM PS/2 SIMM MODULES

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6450375 (1Meg)	80-041	65.00
6450379 (2Meg)	80-111, 311	139.00
6451060 (4Meg)	80-A21, A-61, 80-A31, 80-111, 80-311	249.00
6450603 (1Meg)	35SX, 40SX, 55SX, Model-70's, P-70	65.00
6450604 (2Meg)	35SX, 40SX, 50Z, 55SX, 55LS, Model 70-E, 061, 121, P-70	99.00
6450608 (2Meg)	70-A21, A-61, 8-21, 8-61	105.00
78X8955 (128K)	25	35.00
34F2933 (4Meg)	35SX, 40SX, 55SX, 65SX	199.00
87F9977 (4Meg)	55SX, 55LS, 65SX, 40SX, 35SX, 35LS	199.00
1383679 (512K), (2Meg)	P/S1	50.00, 139.00
6450902 (2Meg)	57SX,90, 95, P-75	119.00
6450128 (4Meg)	57SX, 90, 95, P-75	299.00
6450129 (8Meg)	35SX, 40SX	479.00
6450130 (8Meg)	57SX, 90, 95, P-75	499.00
P/S2, LX40 (2Meg, 4Meg, 8Meg)		129.00, 229.00, 449.00

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DeskPro 486/25	2Meg Module	115144-001	139.00
	8Meg Module	116561-001	499.00
DeskPro 386/33	2Meg Module	115144-001	139.00
DeskPro 386/25, 386/20	1Meg Module	113131-001	59.00
	4Meg Module	113132-001	199.00
DeskPro 386S	1Meg Exp 8d	113633-001	139.00
	4Meg Exp 8d	113634-001	279.00
	1Meg Module	113646-001	79.00
	4Meg Module	112534-001	209.00
DeskPro 386/20E	1Meg Exp 8d	113644-001	129.00
DeskPro 386/25E	4Meg Exp Bd	113645-001	279.00
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386N, 386SX20	2Meg Module	118689-001	119.00
	4Meg Module	118690-001	219.00
DeskPro 386/16	1Meg Kit	108071-001	119.00
	4Meg Kit	108072-001	269.00
	1-2Meg Exp 8d	108069-001	309.00
	4-8Meg Exp 8d	108070-001	549.00
DeskPro 286	512K Kit	113012-001	79.00

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Portable III	2Meg Kit	107332-001	119.00
Compaq SLT/286	1Meg Module	110235-001	129.00
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Compaq Lte 386S/20	1Meg Module	121125-001	149.00
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T2000/T2000SX	2Meg	PC18-PA8317U	179.00
T2000SX/T1000LE	4Meg	PC-PA8314U	329.00
T2000SX/T1000LE	8Meg	PC14-PA8315U	619.00
T2000SXE/2200SX	2Meg	PC-PA2000U	179.00
T2000SXE/2200SX	4Meg	PC-PA2001U	329.00
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T3200SX	4Meg	PC12-PA8909	195.00
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VIOEOLINX:Framebuffer (frame capture & display) 495
Willow Publisher's Color (16-bit color realtime) 655
NTSC Encoders / Decoders / Genlock / Overlays
Everex Vision VGA w/Overlay 1-MB $629
Jovian GENIE professional scan converter (external) 1295
Jovian VIN Plus NTSC encoder (external unit) 344
MAGNI VGA Producer VGA, Video in/out/overlay 1475
Willow VGA-TV GE/O (w/Video Titler s/w) 635
ideo Titling Software -- broadcast-quality titling
Video Titler by Entropy Engineering $365
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Super Video Windows Board w/ software $895
Super Video Windows Tuner Board (for TV input) 295

Video Monitors & Controllers

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VIKING two-page hi-res DTP monitor systems
iking 3/91M 20" monitor & controller $1399
iking 3/91GS 20" 4/8-bit grayscale monitor & contr 1999
iking 3/2400M 24" monitor & controller 1999

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Flat screen high resolution color monitors for DTP, scientific/engineering and CAD. Workstation monitor quality. 1280 x 1024 resolution and AccuColor on 4FG, 5FG and 6FG models.
3FGX flat screen 14", 1024 x 768 non-interlaced $649
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microLaser Plus PS-35 PostScript, 35 fonts, 9-ppm 1498
microLaser XL PS-17 PostScript, 17 fonts, 16-ppm 2395
microLaser XL PS-35 PostScript, 35 fonts, 16-ppm 2659
microLaser Turbo PS-35 PostScript 2, 35 fonts, 9-ppm 2059
microLaser XL Turbo PS-35 PostScript 2, 35 fonts, 16-ppm 3359

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SilentWritar2 Mod 90 300-dpi, 4-MB RAM, PostScript 1695

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OL830 300-dpi, PostScript & scalable HP PCL fonts 1399
OL840 PostScript, 35 fonts, 2-MB RAM 1799

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PacificPaga PE PostScript Cartridga 395
PacificPage XL *accelerated* Postscript cartridge 799
Type City by Bitstream for HP LaserJet 258
25 Plus/Charisma font cartr. for HP LJ by Elite 249
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QMS printer RAM upgrades, 5-yr warranty ..... CALL
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Calera WordScan Plus - PC Mag Editor's Choice 665
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OmniPage 386 Professional by Caere (trainable) 639
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Publisher's Paintbrush for Windows by Z-Soft 285
Tempra Pro by Mathematica (DOS application 24-bit) 345
WinRix for Windows (color image editor) 295

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Logitech Scenman 32 w/ Catchword DCR s/w bundle 229
Logitech Scanman 256 400 dpi, 256 grays, Windows 3.0 285
Logitech Scanman 256 bundled w/ Catchword OCR 429

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The Typist + Grephics hand-held OCR scanner. Easy and effective way to input text right into your favorite word processor. Just scan the document & you're ready to go. 385

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OXY-1300 8-pen A-B-size flatbed plotter 1359
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AST Premium Exec 386-63V ..... Call
Everex Tempo LX 386-40 ..... Call
Everex Tempo LX 386-60 ..... Call
Panasonic CF270/CF370 ..... Call/Call
T.I. TM 2000-40 ..... Call
T.I. TM 3000-40 ..... Call
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T.I. TM 3000-WINSX ..... Call

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120MB 1144A $439
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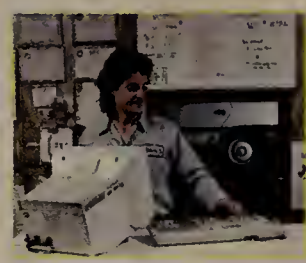

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THE HOME OFFICE

The practical guide to home/office computing

Steve Bass

It's always a treat to see the UPS truck pull up in front of my house—especially if I'm expecting a new computer or components. Buying through the mail involves some risk, but you can reduce that to about the same level as buying from a computer store, provided you take a few simple precautions before *and* after purchase.

Since you won't get to touch your purchase beforehand, you'll need to temper your enthusiasm for a new PC with cold calculations. Draw up the specs for your base configuration, know your top price, and research brands carefully. There's no rush. One thing you can always rely on: Everything will be cheaper tomorrow...and cheaper still the day after.

Narrow your list of prospects using ads in computer magazines, and be ready to make extensive phone calls to fill in the gaps. Many people take notes with a word processor, but a spreadsheet jockey in our user group helped me build a *Quattro Pro* spreadsheet to use as a checklist of component specs, company policies, prices, and recommendations. You can get my worksheet free off the PIBMUG BBS listed below.

ANTHONY RUSSO

I started by listing PCs in columns along the top and the specs for every component in separate rows down the left side. For example, my hard drive had to be at least 200MB running at a fast 15ms. I also wanted to know who manufactured it. You should incorporate every detail: monitor dot pitch, video memory, CPU speed, DOS and BIOS version numbers. If you're able, give each a numerical weight in keeping with its value to you, and add up the scores at the end.

Looking at the fine print in a gazillion magazine ads raises other questions. Mail-order companies reveal (or don't reveal) a lot about their policies in that small print. You'll need rows to record

DON BAKER

information about support (is there an 800 number? 24-hour service?), on-site service, return/refund policies, and restocking fees.

I call companies three or more times to ask a variety of questions, including some for tech support. I gather recommendations from colleagues but also ask companies for referrals. While predicting a firm's financial future is hard, profitability and length of time in business give some indication. If a voice-mail message suggests that you "press 1 for Chapter 11 status," keep shopping.

Finally, think about your unique requirements as well as your future needs: Will the system board accept only memory upgrades purchased from the mail-order firm? Can you subtract components—a keyboard, for example—and reduce the cost?

When you're ready to order, ask whether the product is in stock, and get a firm shipping date before committing. For leverage in case of disputes, pay by credit card.

Thoroughly check your system *immediately* after it arrives, and burn it in for at least 72 hours to decrease the chance of getting burned yourself. *QAPlus*—a commercial program Northgate Computer throws in for free—lets you burn in every nook and cranny of your computer. The $15 shareware program *BurnIn* is just as thorough. Run one of them again just before your warranty expires.

Buying by mail-order doesn't have to mean buying a risky, no-name clone from a Midwest garage. Today, you can get brand-name quality plus good service and support for a surprisingly low price—if you shop right.

Contributing Editor Steve Bass is a family therapist and president of Pasadena IBM Users Group.

Steve's Mail-Order Worksheet PIBMUG; 818/332-6580 (BBS)

BURNIN43.ZIP $15; George Campbell; 805/528-3753 (BBS)
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QAPlus $159.95; DiagSoft, Inc.; 408/438-8247
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For more information about all products in this article, circle reader service no. 901.

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   - ☐ i386™SX-based systems
   - ☐ i386-based systems
   - ☐ i486™SX-based systems
   - ☐ i486-based systems
   - ☐ UNIX® based systems
   - ☐ Notebooks
   - ☐ Other: _____
2. Are you interested in computer products for:
   ☐ Home ☐ Business ☐ Resale
3. If for resale, please identify your primary customers:
   ☐ General Business ☐ Government ☐ Education ☐ Medical
4. How many PCs does your company plan to purchase in the next twelve months?

Quantity	Timeframe	Quantity	Timeframe
_____	Less than 1 month	_____	6-12 months
_____	1-3 months	_____	More than 12 months
_____	3-6 months		

5. What do you plan to use computer products for?

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6. How many PCs do you have installed now at your company?

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7. Are you interested in leasing? ☐ Yes ☐ No

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7. Are you interested in leasing? ☐ Yes ☐ No

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†Source Toshiba published price as of 12/17/91 Actual dealer prices may vary ◊Source: Compaq Computer Press Release 11/4/91 All other suggested retail prices as of 11/5/91. All prices and specifications are subject to change with-
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